ABDEC DROPS

mean "right foot forward"...

Starting life on the right foot, nutritionally speaking, contributes materially to normal, unimpeded infant growth and development. With ABDEC DROPS, the physician can place in the hands of the mother the means of assuring her that her infant will receive an adequate supply of essential vitamins and a healthier nutritional status.

ABDEC DROPS join fat and water-soluble vitamins—A, B_1, B_2, B_6, C, D, sodium pantothenate and nicotinamide—into *one* highly concentrated solution that may be administered directly or added to foods. ABDEC DROPS are one of a long line of Parke-Davis preparations whose service to the profession created a dependable symbol of significance in medical therapeutics—MEDICAMENTA VERA.

ABDEC DROPS may be administered directly or may be added to formula or other food without appreciably altering taste or appearance. Included in each package is a dropper graduated at 0.3 cc. (daily dose for infants under one year) and 0.6 cc. (daily dose for older children and adults).

Each 0.6 cc. represents:

Vitamin A	5000 units
Vitamin D	1000 units
Vitamin B_1 (Thiamine Hydrochloride)	1 mg.
Vitamin B_2 (Riboflavin)	0.4 mg.
Vitamin B_6 (Pyridoxine Hydrochloride)	1 mg.
Pantothenic Acid (as the sodium salt)	2 mg.
Nicotinamide	5 mg.
Vitamin C (Ascorbic Acid)	50 mg.

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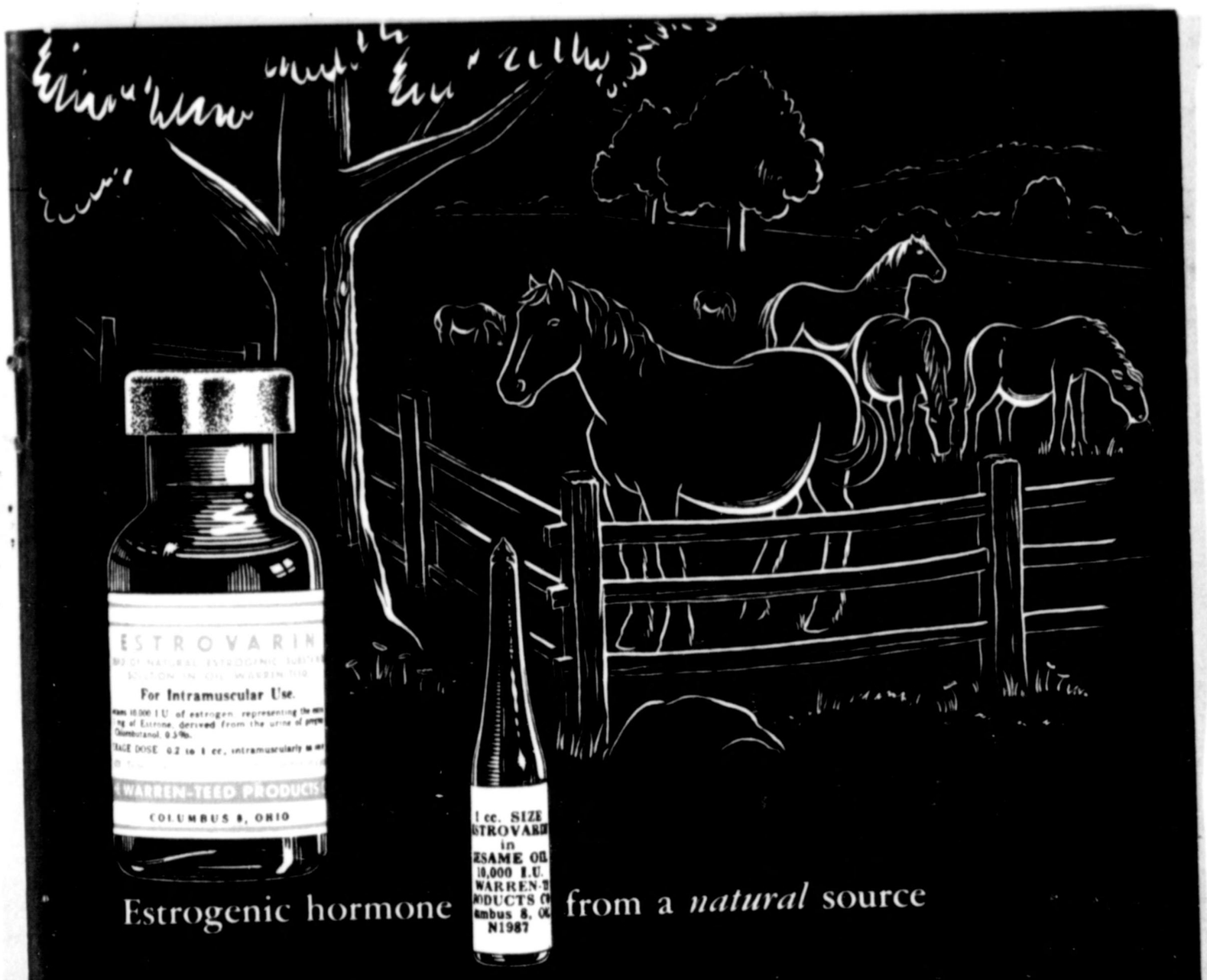
MEDICAMENTA VERA · PD CO.

Contents—*(Continued from page 6)*



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Correspondence

Communications from the readers of MODERN MEDICINE *are always welcome. Address communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 2, Minn.*

Glutamic Acid Dosage for Mentally Retarded

TO THE EDITORS: I would like to amplify the information on glutamic acid in Questions & Answers, MODERN MEDICINE, Aug. 1, 1947, p. 22.

In the treatment of mental retardation, glutamic acid should be administered only in the L plus (natural dextrorotary) form—without the attached hydrochloric acid molecule.

The dose ranges from 12 to 24 gm. per day in three divided doses, and the proper dose must be established in each case. There is no relation between weight, age, and dosage. I customarily start with a dose of 4 to 6 gm. per day and gradually increase the amount to the point of increased mental and physical activity, just short of distractibility. If the child is hyperactive normally, one should gradually increase the dose to the point where increased incentive or attention is noted. When this point is reached mothers frequently report that the child has "quieted down a lot."

Since L plus glutamic acid is insoluble and unpalatable, it is usually best to administer it in the powder form, well masked by such substances as applesauce, apple butter, the fruit flavor of strained baby food, etc. This is especially necessary in treating very young children.

Glutamic acid hydrochloride is not efficacious in this type of treatment and if glutamic acid hydrochloride is administered in anything approximating the required large doses noted above, severe gastric upsets will inevitably result.

Mild gastric disorders also occasionally occur at the beginning of treatment with the L plus form of glutamic acid minus the hydrochloric acid molecule. If this occurs it is necessary only to discontinue treatment for a few days, then begin with smaller doses and gradually work up to the original dose. No other side reactions occur.

L plus glutamic acid is manufactured only by Parke-Davis at the present time.

The following clinical reports are also available in the literature:

F. Zimmerman, B. Burgemeister, and T. J. Putnam: Effect of glutamic acid on mental functioning in children and adolescents. *Arch. Neurol. & Psychiat.* 56:489-506, 1946.

F. Zimmerman, B. Burgemeister, and T. J. Putnam: A group study of the effect of glutamic acid upon mental functioning in children and adolescents. *Psychosom. Med.* 9:175-183, May-June 1947. [EDITOR'S NOTE: This article appeared as an abstract in MODERN MEDICINE, Sept. 1, 1947, p. 61.]

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ADHESIVE THAT STAYS PUT!

Summer or winter—dry or moist—SEAMLESS adhesive stays put. Unaffected, it "sticks" to its purpose and adheres firmly until removed. The adhesive mass is highly purified to free it from possible irritants. *That means skin protection!* . . . You have both performance and purposeful quality—the perfect combination! *Users of SEAMLESS products appreciate the difference!* Sold exclusively through selected Surgical Supply Dealers . . . Regular or Stay Dry. 12" x 10 yards sectional rolls—in uniform or assorted widths.

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F. Zimmerman, B. Burgemeister, and T. J. Putnam: The ceiling effect of glutamic acid upon intelligence in children and adolescents. Read before the annual meeting of the American Psychiatric Association, New York City, May 22, 1947.

FREDERIC T. ZIMMERMAN, M.D.
New York City

Large Audience

TO THE EDITORS: I wish to take this opportunity to compliment you on the quality of your magazine and assure you that I am always looking forward to reading it. Many a new idea finds its way to MODERN MEDICINE and then reaches a larger audience among the profession than through any other publication.

S. D. FIRESTONE, M.D.
Rockville, Conn.

Book Section Helpful

TO THE EDITORS: In my opinion the book section in MODERN MEDICINE is very helpful. I cut it out of each issue and keep the pages in a loose-leaf notebook.

ANGELINE MCNEILL
Medical Librarian
Chicago, Ill.

Prostatic Cystoscopy

TO THE EDITORS: You did a very fine job of abstracting my article on cystoscopic misinterpretations of the prostate (MODERN MEDICINE, June 1, 1947, p. 62). The original article definitely was not easy to abstract, if one was to retain its original meaning. Your adaptation of the illustration was well done, too.

WILSON STEGEMAN, M.D.
Santa Rosa, Calif.

Suggestions for Special Issues

TO THE EDITORS: Congratulations on your excellent idea of forming special issues dedicated to certain subjects, such as cancer.

I earnestly hope that you will do the same thing with the prevention of heart disease, with the modern concepts of nephropathies and of vitamins, and on the prevention and treatment of colds, flu, and allied conditions.

MARDOQUEO I. SALOMON, M.D.
Bronx, N.Y.

Excellent Abstract

TO THE EDITORS: Thank you for sending me the abstract of my article on otolaryngology in general practice that appeared in your July 15 number (p. 41). It was an excellent abstract of the article.

WATT W. EAGLE, M.D.
Durham, N.C.

Likes News Coverage

TO THE EDITORS: Just a word to approve the issue of MODERN MEDICINE twice a month. The smaller issue permits complete reading of the many items in medical news, a field most of us neglect entirely or scan very superficially from reports published in the daily newspapers.

P. C. RUMORE, M.D.
Effingham, Ill.

Good Editing

TO THE EDITORS: I have always admired the precise form and good editing of your abstracts.

JULIAN ARENDT, M.D.
Chicago, Ill.

HYPER – RU

SUTLIFF & CASE • PEORIA, ILL.

THIOCYANATE THERAPY PLUS **RUTIN** in the treatment of

Arterial Hypertension

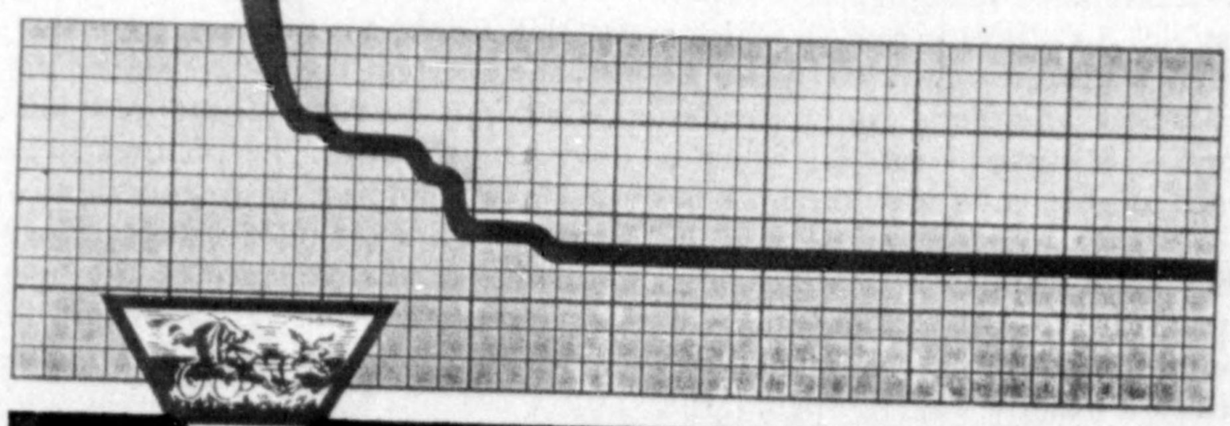
MAINTAINING LOWERED BLOOD PRESSURE OVER A PROLONGED PERIOD . . . .

After the blood pressure has been maintained at a lower level for from one to three months—where Thiocyanate therapy is employed—a great improvement in the patient's symptoms is generally noted. The first period of weakness passes away, a feeling of well-being with a return of energy follows, and there may be concomitant improvement of heart and kidney functions.

RUTIN is indicated as an aid in the treatment of increased capillary fragility accompanying hypertension.

EACH TABLET CONTAINS

HYPER-RU #1		HYPER-RU #2	
Potassium Thiocyanate	1½ gr.	Potassium Thiocyanate	3 gr.
Rutin	5 mg.	Rutin	5 mg.
Specially coated		*Specially coated*	



SINCE 1883 SUTLIFF & CASE CO., INC. PEORIA ILLINOIS

Forensic Medicine

COMPILED BY ARTHUR L. H. STREET, LL.B.

When Malpractice Is Implied

PROBLEM: Did mere proof that a child died shortly after tonsillectomy place the burden on the operating doctor and hospital to show that their negligence did not cause the death?

COURT'S ANSWER: No.

Lawyers for the child's parents, who sued for damages, sought to have applied the rule of law known as *res ipsa loquitur*. Under this rule in certain cases negligence may be inferred from results not to be expected when due care has been used.

The Supreme Court affirmed a judgment dismissing the suit. One of the justices noted that plaintiff offered no proof as to the cause of death, that death might have resulted from unforeseen but normal causes, and that "death alone is insufficient to establish both its cause and inference of negligence therefrom."

The court cited three appellate court decisions involving situations in which inference of negligence was permissible: A California case, in which a patient's arm was injured while he was under anesthesia for appendectomy; a Mississippi case in which a 4-inch rubber tube was left in a patient's body after operation; and another Mississippi case in which bugs apparently lodged in an operative wound in the course of appendectomy because a window was left open. (Miss. Sup. Ct. 27 S. 2d 889.)

License Revocations

PROBLEM: A statute authorizes revocation of a medical license if the holder is guilty of a felony or gross immorality. Is a charge that defendant was guilty of gross immorality by violation of the narcotics act as shown by record of conviction sufficient to sustain revocation?

COURT'S ANSWER: Yes.

The Indiana Supreme Court said that license revocation proceedings are not governed by the strict rules of pleading that apply to court procedure. The charge was sufficiently specific to apprise the doctor that he would be called upon to meet two statutory grounds for revocation, gross immorality and guilt of a felony. (Ind. Sup. Ct. 70 N. E. 2d 354.)

Roentgenogram Witness

PROBLEM: May a physician be qualified as a witness to explain and identify roentgenograms without calling into court the custodian of the pictures or the technician who made them?

COURT'S ANSWER: Yes.

The question was raised before the Mississippi Supreme Court in a personal injury case. The pictures were made in a hospital by an experienced x-ray machine operator with a proper machine in the presence of the doctor, who was himself competent to make and read such pictures. The pictures remained in the hospital and were brought into court unaltered.

The so-called "Unknown Factors" and...

VITAMINS

Lederle

For many years, Lederle has led in the introduction of new vitamin combinations which have contained several of the so-called "unknown factors." These have included such substances as calcium pantothenate, pyridoxine (B_6), choline, inositol and folic acid. These factors have been "unknown" in the sense that while they were chemically recognizable and their effects in animals were clearly demonstrable, their precise usefulness in man had not been determined.

Recently, FOLVITE* Folic Acid has been shown to be the nutritional factor specific for red blood cell maturation in bone marrow. Thus, *Lederle* pioneering has been shown to have a sound basis in fact. It will continue to be our policy to give to physicians and their patients new vitamin factors, even though information upon them is not yet complete.

Malnutrition is present even in a rich and fast-moving economy. Vitamin deficiency is usually multivitamin deficiency and nutritional deficiency nearly always includes vitamin deficiency. Attention is drawn particularly to the following formulae—reinforced with FOLVITE Folic Acid which are widely used:

PERFOLIN Brand of Multivitamin Capsules**
Each capsule contains:

Vitamin A	25,000 U. S. P. Units
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Thiamine HCl (B_1)	10 mg.
Riboflavin (B_2)	5 mg.
Niacinamide	150 mg.
Ascorbic Acid (C)	150 mg.
FOLVITE Folic Acid	5 mg.

FOLBESYN Parenteral Vitamins**
Each dose contains:

Vitamin B_1	10.0 mg.
Sodium Pantothenate	10.0 mg.
Niacinamide	50.0 mg.
Vitamin B_2	10.0 mg.
Vitamin B_6	5.0 mg.
Vitamin C	75.0 mg.
with diluent, containing	
FOLVITE Folic Acid	3.0 mg.

LEDERPLEX* Vitamin B Complex Tablets
Each tablet contains:

Thiamine HCl (B_1)	2.0 mg.
Riboflavin (B_2)	2.0 mg.
Niacinamide	10.0 mg.
Pyridoxine (B_6)	0.2 mg.
Calcium Pantothenate	3.0 mg.
Choline	20.0 mg.
Inositol	10.0 mg.
FOLVITE Folic Acid	0.2 mg.

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PERFOLIN Multivitamin Capsules — *Bottles of 30 and 100.* FOLBESYN Parenteral Vitamins — *Single dose package contains 1 vial dried vitamins and 2 cc. ampul of diluent. Also in multiple package of 25 single doses.* LEDERPLEX Vitamin B Complex Tablets — *Bottles of 50, 100, 250, and 1000.*

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The court said that when a roentgenogram is shown to have been made by a regular operator at a modern hospital, it will be presumed, in the absence of proof to the contrary, that the operator employed the requisite skill and apparatus. (30 So. 2d 603.)

In another recent case, the Illinois Appellate Court, First District, ruled that a doctor's testimony in identifying pictures as having been made under his direction and as showing an injury identical with that shown by other pictures, may be admitted without the testimony of the technician who made the pictures. (73 N.E. 2d 647.)

Faith Healing Immunity Excludes Fakers

PROBLEM: Can a defendant who physically examines disrobed patients, makes diagnoses, and prescribes treatment claim immunity from prosecution for practicing medicine without a license under a statutory exemption of those who practice religious tenets of a church?

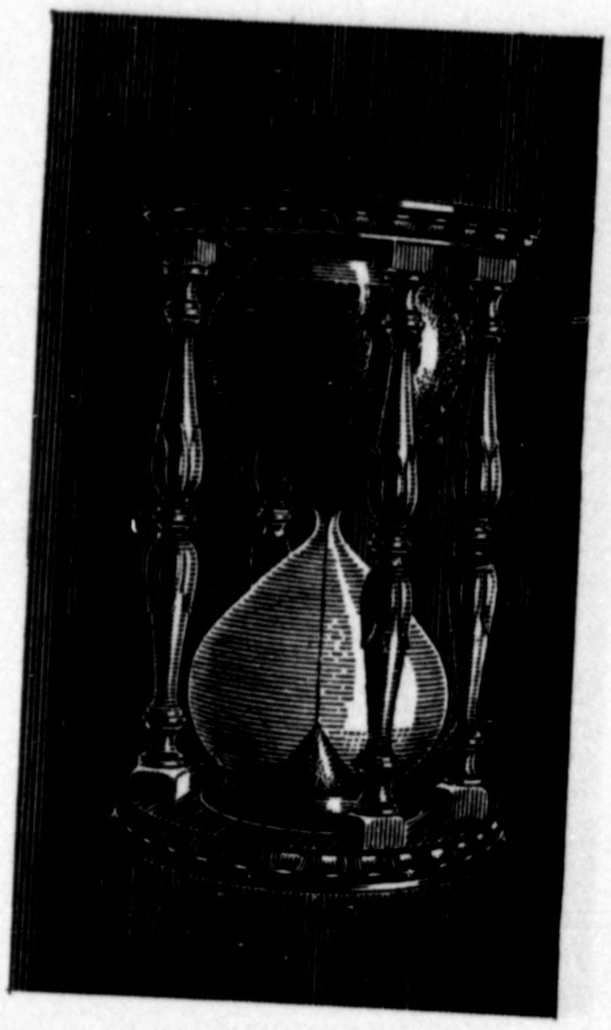
COURT'S ANSWER: No.

The Kings County, N.Y., Court, in refusing to vacate a verdict of guilt, followed a pronouncement of the New York Court of Appeals that the statutory exemption applies only when treatment is limited to the power of religious spirit. The court found that sham was instanced by the defendant in requiring a patient to remove her corset because his magnetic power could not penetrate it.

As long as the healer inculcates the faith of the church as a method of healing, he is immune. When he puts spiritual agencies aside and takes up agencies of the flesh, his immunity ceases. He is then competing with physicians on their own ground, using the same instrumentalities, and arro-

Prolonged effect

in local mouth lesions



Troches of Bristol Penicillin dissolve slowly while resting in the buccal sulcus. Penicillin is gradually released into the saliva, bathing the accessible mucous lining of the oral cavity with an effective concentration of the antibiotic. Such direct and prolonged contact of penicillin with the local lesion is a basic principle of successful therapy.

Penicillin troches are used with definite relief in *Vincent's angina; ulcerative, aphthous or desquamative stomatitis; hypertrophic or ulcerative gingivitis; inflammatory paradentosis.*

BRISTOL CRYSTALLINE PENICILLIN G TROCHES, pleasantly flavored, are available in bottles of 20. Each troche contains 5,000 units. The excipient has been accurately designed with two pharmaceutical objects—to insure stability of the product in the bottle, and to insure a gradual release of penicillin in the mouth.

Bristol

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gating to himself rights to pursue their methods without their training.

The law exacts no license for ministration by prayer or by power of religion. But one who heals by other agencies must have the training of the expert. This is not prosecution against religion but rather against the faker and quack who claims the cloak of religion to hide his illegitimate practices. (68 N. Y. Supp. 2d 267.)

Proof in Abortion Cases

PROBLEM: Is testimony of the prosecutrix in an abortion case acceptable without corroboration?

COURT'S ANSWER: Yes.

The woman upon whom an abortion is performed is not an accomplice of the defendant in the sense that her testimony cannot be considered unless corroborated by a witness other than an accomplice. The California District Court of Appeals, Second District, decided that corroboration may be found in the defendant's own testimony or inferences drawn from it.

The prosecutrix' testimony that instruments were used did not need corroboration. Her pregnancy might be inferred from her testimony that she was pregnant, corroborated by a man with whom she had cohabited, who arranged for the operation and was present when it was performed.

Proof that the operation was not necessary could be found in uncontradicted evidence that she was in good health. Proof of pregnancy could not rest alone on a hearsay declaration made by her out of court, but erroneous admission of such evidence was not ground for reversing a conviction, when pregnancy was established by other and competent evidence. (179 Pac. 2d 843.)

DESITIN OINTMENT

PIONEER IN THE FIELD OF

EXTERNAL COD-LIVER OIL THERAPY

USED EFFECTIVELY IN THE TREATMENT OF
Wounds, Burns, Ulcers, especially of the Leg, Intertrigo, Eczema, Tropical Ulcer, also in the Care of Infants.

Desitin Ointment contains Cod-Liver Oil, Zinc Oxide, Petrolatum, Lanum and Talcum. The Cod-Liver Oil, subjected to a special treatment which produces *stabilization* of the Vitamins A and D and of the unsaturated fatty acids, forms the active constituent of the Desitin Preparations. The first among cod-liver oil products to possess unlimited keeping qualities, Desitin, in its various combinations, has rapidly gained prominence in all parts of the globe.

Desitin Ointment is absolutely non-irritant; it acts as an antiphlogistic, allays pain and itching; it stimulates granulation, favors epithelialisation and smooth cicatrisation. Under a Desitin dressing, necrotic tissue is quickly cast off; the dressing does not adhere to the wound and may therefore be changed without causing pain and without interfering with granulations already formed; it is not liquefied by the heat of the body nor in any way decomposed by wound secretions, urine, exudation or excrements.

DESITIN POWDER

Indications: Minor Burns, Exanthema, Dermatitis, Care of Infants, Care of the Feet, Massage and Sport purposes.

Desitin Powder is saturated with cod-liver oil and does not therefore deprive the skin of its natural fat as dusting powders commonly do. Desitin Powder contains Cod-Liver Oil, (with the maximum amounts of Vitamins and unsaturated fatty acids) Zinc Oxide and Talcum.

Professional literature and samples for Physicians' trial will be gladly sent upon request.

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INDICATIONS

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Abscesses
Furuncles
Carbuncles
Folliculitis
Acne Vulgaris
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In skin-penetrant solution

Tyrothricin is recognized as the antibiotic of choice for topical use.[1] It is stable and non-sensitizing. Tyrothricin's bactericidal action is faster than penicillin or the sulfonamides.

Intraderm Tyrothricin is a clear, heat-and-time-stable liquid of low surface tension. The "Intraderm" base dissolves the tyrothricin, forming *a true solution*. The skin-penetrant properties of the base disperse tyrothricin throughout the lesions. Some important advantages:

1. **Rapidly bactericidal to most gram-positive organisms causing pyogenic infections.**
2. **Penetrates skin through the hair follicles.**
3. **Nonsensitizing, non-toxic antibiotic.**
4. **Not precipitated by body fluid electrolytes.**
5. **Miscible with pus, serum and tissue exudates.**
6. **Not inactivated by necrotic tissue.**
7. **Stimulates formation of granulation tissue and epithelium.**

1. Sulzberger and Baer, "Yearbook of Dermatology and Syphilology" (1946).

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M.M. 10-47

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thricin

FOR TOPICAL USE

In creamy emulsion base

Tyrothricin is incorporated in Bactra-Tycin's modern oil-in-water base which releases the antibiotic and assures close contact with the lesions.

It protects sensitive tissues, gently cooling inflamed areas. Mixing with tissue exudates, it has none of the disadvantages of old-fashioned greasy bases.

This emulsion base increases tissue hydration. Through detergent action it aids in the removal of cellular debris.

The tyrothricin is rapidly bactericidal. The emulsion softens, undermines and aids in removal of crusts, scabs and scales.

Bactra-Tycin increases lymph flow by promoting local circulation.

INDICATIONS

Chronic or sub-acute dermatitis.

Abrasions.

Infected wounds.

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REG. U. S. PAT. OFF.

[redacted]

Wallace Laboratories, Inc. M.M. 10-47
New Brunswick, N. J.

Send sample of Bactra-Tycin Ointment.

Doctor_____

Address_____

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Questions & Answers

All questions received will be answered by letter directed to the petitioner; questions chosen for publication will appear with the physician's name deleted. Address all inquiries to the Editorial Department, MODERN MEDICINE, *84 South Tenth Street, Minneapolis 2, Minnesota.*

Therapy for Ocular Pemphigus

QUESTION: What is the best method of treating ocular pemphigus?

M.D., Illinois

ANSWER: *By Consultant in Ophthalmology.* There is no known effective treatment for ocular pemphigus. I have personally tried almost every remedy that has ever been suggested and can honestly state that I have never seen any material improvement from any of the currently advocated methods of therapy.

Intracutaneous Vaccination

QUESTION: I would like to vaccinate a child who has chronic eczema. The prick method cannot be used because of a possible autoinoculation. I know that intracutaneous vaccination with diluted vaccine sometimes has been used in these cases. What is the dilution of the vaccine?

M.D., Minnesota

ANSWER: *By Consultant in Pediatrics.* The intracutaneous method is no longer used because it forms vesicles which break. I believe the safest thing would be to wait until the eczema has disappeared.

If an uninvolved area of skin is convenient for the purpose, vaccination may be safe.

Urea-splitting Organisms

QUESTION: An article on page 54 of your August 15 issue referred to kidney stones that formed as the result of infection by urea-splitting organisms. What are urea-splitting organisms and are they susceptible to the action of any of the sulfonamides or penicillin?

M.D., New Jersey

ANSWER: *By Consultant in Urology.* Anaerobic organisms are important in the genesis of calculi. If the infecting agent is a urea-splitting organism the urine becomes alkaline, calcium phosphate is precipitated, and stones are formed. In each case the offending organism should be classified and the urea-splitting power determined. Susceptibility to sulfonamides and penicillin would have to be established individually, as urea-splitting capacity does not parallel sulfonamide- or penicillin-sensitive propensity.

Infections of the kidney by urea-splitting bacteria probably occur more frequently than is generally realized. Investigators have reported that 18% of the bacillary and 40% of *Staphylococcus albus* organisms that infect the urinary tract are urea-splitting. Recently a review of 90 cases of urinary calculi revealed that urea-splitting organisms were responsible for 54% of the cases of stone and for 74% of all infected cases.

Case X—Massachusetts General Hospital Patient—Victim of Cocoanut Grove Fire.

NO. 1—2nd degree burns of face and ears and 3rd degree scalp burn covered by primary occlusive dressing on night of admission. Patient had a total burn surface of 12.5%.

NO. 2—As first head dressing was changed on seventh day, remnants of destroyed skin and dry serum are still present and uninfected.

NO. 3—Final view of the face on the 55th day showing absence of scarring, and normal contours. The scalp healed without grafting.

'VASELINE' PETROLEUM JELLY is the world's leading brand of PETROLATUM U.S.P.

PETROLATUM in the Surface Treatment of BURNS

IN describing treatment of surface wounds of burn casualties following Boston's Cocoanut Grove fire, this simple technique was reported as "eminently satisfactory":*

1. No debridement of burn surface.
2. No cleansing of the burn surface.
3. Bland ointment with protective dressing.
4. Chemotherapy administered internally.

This treatment, given extensive use following the disaster* has the advantage of simplicity. There is less manipulation of the patient, important in consideration of shock. There is quicker relief of pain, with less rolling as necessitated in debridement and cleansing. Earlier relief of pain, too, by prompt covering.

Since infection originates almost entirely from surface contamination following the burn injury, it is pointed out that the earlier the wound can be covered, the less the infection. Thus this simple, early covering method becomes a measure against infection.

In treatment of burn surfaces the physician will find 'Vaseline' Petroleum Jelly is prompt and effective.

*Ann. of Surg. 117:885 (June) 1943.

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PETROLEUM JELLY

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CHESEBROUGH MANUFACTURING CO., CONS'D,
NEW YORK, N. Y.

Rice Diet for Hypertension

QUESTION: I am interested in using a salt-free diet as an adjunct to a rice diet and dialyzed milk for treatment of hypertensive cardiovascular disease. What other foods are permitted with the rice diet? Would it be advisable to use a supplementary vitamin-mineral-iron preparation?

M.D., Pennsylvania

ANSWER: The rice diet for the treatment of hypertension advocated by Walter Kempner, M.D., of Duke University, consists of rice and fruit or fruit juices and sugar, supplemented by iron and vitamins. About 300 gm. or 10 ounces of rice are used each day, boiled or steamed in plain water or fruit juices without salt, milk, or fat. Brown or white sugar may be used ad libitum.

This diet of 2,000 calories contains 20 gm. of protein, 5 gm. of fat, 460 gm. of carbohydrate, 0.2 gm. of sodium, and 0.15 gm. of chloride. Five thousand units of vitamin A, 1,000 units of vitamin D, 5 mg. of thiamin chloride, 5 mg. of riboflavin, 25 mg. of niacinamide, 2 mg. of calcium pantothenate, and 0.6 gm. of ferrous sulfate are given daily. All fruits are allowed except dates, avocados, or fruits to which substances other than sugar have been added. Vegetable or tomato juices or nuts are forbidden. Small amounts of salt or hydrochloric acid may be necessary if severe hypochloremia or symptoms of salt deprivation occur.

Hospitalization is advisable during the first few weeks of the diet but subsequent bed rest is usually unnecessary and undesirable.

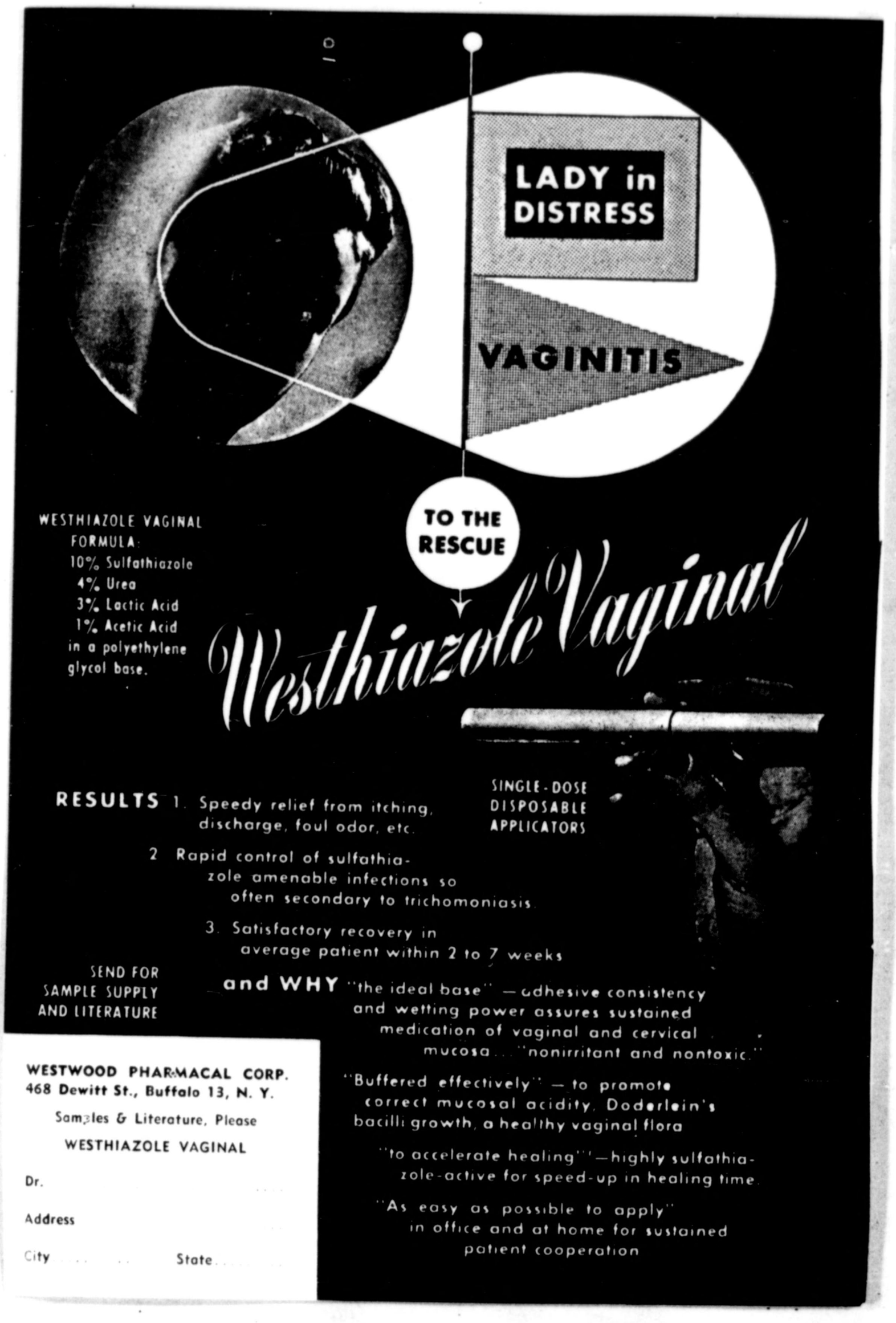
Irvine H. Page, M.D., of the Cleveland Clinic in a recent article on the treatment of hypertension (MODERN MEDICINE, Aug. 15, 1947, p. 37) states that rice diets are unpalatable and

seem to be of little value except to reduce weight in the early stages of the disease. Low-sodium diets—the rice diet is also a low-sodium diet—sometimes accomplish a fall in blood pressure but the patient is often dangerously close to collapse from hypochloremia.

Contracture of Foreskin after Circumcision

QUESTION: I circumcised a nine-month-old infant in the conventional way, using circumcision sutures to unite the skin to the mucous membrane. The penis healed in the usual manner apparently with excellent results, but in about two weeks there was a slight swelling of the foreskin with contraction of the suture line so that an artificial phimosis was created. About a month later I cut away the contraction ring and resutured with the finest absorbable sutures (four). All seemed well, then the same thing happened—a contraction of the suture line and an artificial phimosis. I am now at a loss. There is little foreskin left for any excision yet the condition may repeat itself. Have similar cases been described and what ought to be done?
M.D., Connecticut

ANSWER: *By Consultant in Urology.* The occurrence of contracture of the foreskin after circumcision must be a relatively rare event. I have seen only 1 or 2 cases myself. From the data submitted I would suggest that a longitudinal incision of the foreskin in the midline of the dorsum of the penis be made, that the foreskin be undercut on each side in the area of the scar, and that the incision thus made then be sutured transversely. This is an adaptation of the standard Heineke-Mikulicz procedure which is often used in the intestine. I see no reason why it should not work satisfactorily here, although it is difficult to express a really satisfactory opinion without seeing the patient.



For the nutritionally deficient
patient on a salt-free diet

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Amino acid and polypeptide nitrogen	3.6%	
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Special Article

Simple Benign Peptic Ulcer

JAMES B. CAREY, M.D.*

Prepared for Modern Medicine

For purposes of discussion, peptic ulcers of stomach and duodenum may be considered together. All that is known of the probable causation, the symptomatology, and, with a few differences, the general course and behavior, and finally the treatment applies equally to benign peptic ulcers of stomach and duodenum.

Recent evidence strongly indicates that an increased secretion of hydrochloric acid is the major factor in the production of peptic ulcer of the duodenum. Duodenal contents of patients with ulcers have higher acidity than normal and the capacity for neutralizing gastric juice is consequently less. With duodenal ulcer, the quantity of stomach juice produced in twenty-four hours is excessive and disassociated from postprandial requirements.

Gastric ulcers invariably appear in animals after continuous histamine stimulation. Histamine not only activates acid secretion, but profoundly affects circulation. Indubitably, peptic ulcers arise in stomachs and duodenums of human beings under similar circumstances, that is, when the normal state of the gastric mucosa is frequently altered by disturbances of circulation and secretion. Congestion, hyperemia, and engorgement from vasodilation, or relative ischemia from vasoconstriction, concomitant with depressed formation of protective mucus and accelerated secretion of juice with high acid and pepsin content, are all conditions which are conducive to ulceration.

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Both hypertonicity and hypermotility are contributory to the genesis of ulcer.

The earliest stage of ulcer observed gastroscopically in human beings is the hemorrhagic erosion. Many mucosal and submucosal spot hemorrhages absorb. Others break down, become infected, or are eroded by the corrosive gastric juice, and an ulcer results. The continuous action of the gastric juice assures chronicity, at least for a period. Microscopic trauma of the gastric mucosa by ingested coarse substances is probably not the primary factor, although conceivably such irritation may encourage the continuance of an established ulcer. Septic capillary emboli are unlikely initial factors, but thrombotic occlusion of end vessels may be a cause. Ulcers occasionally occur with cerebral lesions, which apparently disturb vasomotor control in the gastric mucosa. The reason for association with severe burns is unknown. The commonest lesion of the stomach seen gastroscopically is the submucosal or mucosal hemorrhage, and the commonest lesion noted in examination of pathologic material is also the mucosal or submucosal hemorrhagic area. Ulcer is most apt to develop in areas continuously bathed in acid and inadequately protected by mucus or alkaline bile and pancreatic juices.

About 10% of all individuals have, at some time, peptic ulcers. The first occurrence is likely to be during the course of, or following, an acute infectious disease, usually of the upper respiratory tract, or after sudden or continuous physical or mental strain. Recurrences, exacerbations, or complications are likewise initiated by any of the above factors or by gross indiscretions in diet. Original ulcers or early recurrences are prone to heal spontaneously or with simple measures such as rest, vacation, or restriction of diet.

MEDICAL MANAGEMENT

The rationale of the medical management of peptic ulcer of the stomach or duodenum is based upon two adequately proved assumptions: [1] that gastric juice exerts an erosive and consequently deleterious influence upon an open lesion of the mucosa, and [2] that the unusually powerful contractions, increased tone, and spasm which occur in the stomach or duodenum when empty tend to inhibit healing. Since both these phenomena produce notable discomforts, symptomatic relief

and healing of the lesion may be accomplished by a regimen which counteracts the erosive effect of the gastric secretions and at the same time quiets muscular activity.

The basic requirements of such a regimen are met by proper sedative measures together with frequent administration of food or antacid substances, or both. By keeping something in the stomach all the time, muscular activity is reduced and secretions are diluted, neutralized, or absorbed.

The food administered should be liquid, semisolid, or reduced to a pasty state, without coarse, rough elements. Hence, foods which can be finely divided, strained, puréed, or cooked to a soft consistency are chosen. Depending upon the ingenuity of the physician and the cook and the financial status of the patient, a wide variety is possible. The basic foods of most ulcer diets are milk, butter, eggs, gelatin, custard, softened bread or toast, strained fruit juices, and sauces. To these cream soups, puréed vegetables, chopped or scraped meats or fish, mashed or baked potatoes, jelly, and similar substances may be added.

ACUTE ULCERS

A patient with an acute ulcer should be in bed and the food intake restricted to fluids or semisolids, ingested in small amounts at frequent intervals. A modified Sippy regimen is simple, practical, and cheap. The original Sippy therapy had the disadvantage of being deficient in some vitamins, particularly the B complex and vitamin C, and entailed use of a considerable quantity of sodium bicarbonate, which is apt to produce alkalosis and which probably stimulates compensatory acid production in the stomach, the so-called acid rebound. Nevertheless, the hourly administration of a milk and cream mixture is very satisfactory in most instances. This mixture, if palatable, may be enriched by one of several protein-carbohydrate concentrates, reinforced with minerals and vitamins. If the patient is obese or if the mixture is too rich to suit the taste, cream may be omitted.

Management of patients with active ulcers should be started by a period of at least three weeks in bed, assuming that the distress is quickly relieved and that there are no complications. The latter, particularly hemorrhage and retention, often require much longer periods.

A schedule of feedings and medication may be arranged for

ambulant patients whose symptoms indicate relative indolence and inactivity of the ulcer.

ANTACIDS

The medicinal agents used in treating peptic ulcer are substances which chemically neutralize the acidity of the gastric juice or will by absorption inactivate the acid reaction. Substances most frequently used have been sodium bicarbonate, sodium citrate, calcium carbonate, calcium or magnesium phosphate, bismuth subnitrate, or subcarbonate and magnesium oxide. Each has advantages and disadvantages.

Sodium bicarbonate is soluble and likely to irritate the gastric mucosa and cause greater and more continuous acid secretion, although initially effective as a neutralizing agent. Large amounts of sodium bicarbonate may disturb the acid-base balance of the body, especially with pyloric obstruction or impaired renal or hepatic function. If used continuously, the total daily amount should be less than 4 gm. Magnesium oxide has three times the neutralizing power of sodium bicarbonate and does not form gas but is laxative and may cause a secondary rise of acid or alkalosis. Calcium carbonate has a rather low neutralizing value, one-fifth that of sodium bicarbonate, is insoluble, not likely to disturb the acid-base equilibrium, and is not irritating, but may induce constipation or flatulence. The phosphate of calcium has similar properties and higher neutralizing value, but may be irritating.

Because of the objections to the chemical substances mentioned above, other materials have been used. Magnesium trisilicate has been recommended as an effective antacid. Neutralization seems to be more prolonged than with other alkaline compounds, and adsorbent and antiseptic activities are evident. For these reasons magnesium trisilicate may be used as the last medication before sleep, two teaspoons of powder in water, or two 7½-gr. tablets. Colloidal suspension of aluminum hydroxide is a very effective antacid, by absorption and adsorption action, and if used as a continuous drip through an indwelling tube may form a protective coating over an open lesion. It is apparently nontoxic and does not disturb the acid-base balance of the body. The dose is 1 or 2 drams in water between feedings. Most patients using this preparation with the usual

(Continued on page 98)

Radioactive Phosphorus for Internal Radiation

CHARLES A. DOAN, M.D., B. K. WISEMAN, M.D., CLAUDE-STARR WRIGHT, M.D., JOSEPH H. GEYER, M.D., WILLIAM MYERS, M.D., AND JO W. MYERS, M.S.*

Ohio State University, Columbus

RADIOACTIVE phosphorus produces long remissions in polycythemia rubra vera, improves leukemic conditions resistant to roentgen rays, relieves the deep bone pain of metastatic tumor, but does not retard growth. Pruritus with leukemia cutis, polycythemia rubra vera, and exfoliative dermatitis may be temporarily checked by treatment.

The phosphorus is selectively deposited in bone and in the nuclei of rapidly multiplying cells. Beta rays emitted from these sites inhibit and destroy the adjacent bone marrow elements.

In 100 cases observed by Charles A. Doan, M.D., and coworkers, individual susceptibility and tissue response to phosphorus irradiation varied greatly. Cyclotron phosphorus was given intravenously as dibasic sodium phosphate; the more recent material from the uranium piles, potassium dihydrogen phosphate, was given orally.

Treatment should be carefully adjusted to special needs and idiosyncrasies; doses must be small and well spaced and the effect on bone marrow and blood observed often.

With polycythemia rubra vera the myeloid, erythroid, and megakaryocytic marrow cells are hyperplastic. Previous therapeutic methods have failed to control one or more elements, especially the megakaryocytic. P^{32} reduces all types of hyperplasia and lessens the danger of hemorrhage and thrombosis.

In half the cases, hematologic and symptomatic remissions have lasted from five to nineteen months; nearly a third more improved but some required venesection from time to time. In some instances both white cells and platelets are so reduced before red cells are affected that phosphorus must be discontinued.

For chronic lymphatic leukemia the effect of therapy may be excellent, moderately good, or negligible. Associated intractable pruritus was relieved in one instance after failure of spray roentgen irradiation.

Although remissions of leukosarcoma lasting from three days to three weeks have been induced, the disease eventually becomes resistant to irradiation and is occasionally aggravated thereby.

In chronic myelogenous leukemia, red and white cell counts become normal but splenomegaly continues. Phosphorus is apparently not as useful as roentgen therapy but may be employed when x-rays are not well tolerated. Intensive therapy may be contraindicated by the effect of irradi-

* Radioactive phosphorus, P^{32}: a six-year clinical evaluation of internal radiation therapy. J. Lab. & Clin. Med. 32:943-969, 1947.

ation on peripheral blood and bone marrow.

Symptoms were moderately relieved in a case of chronic monocytic leukemia. In acute cases favorable effects may continue for two to four weeks, but most patients are not benefited.

Irradiation with P^{32} for Hodgkin's disease is not only futile but dangerous; all three types of blood cells may be decreased.

Relief from the pain of malignant metastases in bones may last for two weeks to six months, although regression of tumor tissue cannot be demonstrated.

Cutaneous lesions and the pruritus in exfoliative dermatitis may be temporarily improved at the expense of bone marrow. In a case of mycosis fungoides, treatment had no appreciable effect.

Effect of Famine on the Heart

ANCEL KEYS, Ph.D., AUSTIN HENSCHEL, Ph.D., AND HENRY LONGSTREET TAYLOR, Ph.D.*

CONTRARY to physiologic teaching, both the size and the functional capacity of the heart are greatly decreased by prolonged starvation. Cardiac weakness is most noticeable soon after return to an adequate diet, and prestarvation strength is not fully restored for several months.

In 32 young men fed a European famine ration for six months, shrinkage of the heart in all dimensions was noted by Ancel Keys, Ph.D., and associates of the University of Minnesota, Minneapolis. The average total volume is reduced 16% and stroke volume 18%. Systolic blood pressure falls 12 mm. and diastolic pressure 6 mm.; venous pressure drops to 50% of the prestarvation level. All the typical signs associated with severe famine develop.

The heart beats about thirty-seven times per minute and in some cases less than thirty. Physical work of the heart during rest is half the former value. The margin of safety, expressed as the ratio of venous oxygen to metabolism, is also reduced by half.

Between the twelfth and twentieth weeks of rehabilitation, probably because metabolic demands increase more rapidly than cardiac capacity, tachycardia and dyspnea are much more frequent than during famine, and heart failure may occur.

The heart recovers almost normal size in twelve weeks. Within twenty weeks body weight is restored. After the thirty-second week the heart is functionally sound in most respects but the oxygen capacity per heart beat is a trifle low.

* The size and function of the human heart at rest in semi-starvation and in subsequent rehabilitation. Am. J. Physiol. 150:153-169, 1947.

Herpes Zoster

J. G. M. HAMILTON, M.B.*
Royal Infirmary, Edinburgh, Scotland

HERPES zoster is an acute infective disease of the central nervous system caused by a filtrable virus with an affinity for the posterior root ganglia and posterior horns of the spinal cord. Involvement of the associated sensory nerve produces segmental pain and a vesicular eruption on the skin. The pain, which may last for a week before eruption occurs, is often mistakenly attributed to pleurisy, appendicitis, or kidney stone, depending upon location.

Usually the disease is confined to one or two segments, but J. G. M. Hamilton, M.B., has noted cases in which the brain is extensively involved. Treatment is limited to relief of pain and care of skin lesions.

The viral agents of zoster and chickenpox are closely related and possibly identical. Zoster may be followed by the same disease in one contact and by varicella in another, but varicella is rarely succeeded by zoster and cross-immunity is incomplete or absent.

The disease begins with mild fever, general malaise, and occasionally headache and signs of meningeal irritation. Within a day or two a burning or tingling sensation or a boring or lancinating pain may be felt in the distribution of one or two nerve roots, and the skin becomes red and hypersensitive.

On the third or fourth day vesicles containing clear fluid appear in clusters along the course of the nerve; some remain discrete, others coalesce. If undamaged, dry crusts form that separate a week or ten days after onset, leaving a shallow scar. Secondary infection is frequent and severe cellulitis may occur.

Neuralgic pain may diminish or disappear as the rash begins or may persist for several days. In a few cases paroxysmal attacks recur for years, causing almost intolerable distress. Postherpetic neuralgia occurs chiefly in older persons.

In nearly three-fourths of the cases the thoracic segments only are affected; sacral location is unusual. Sensation may be impaired in the affected dermatome, and anesthesia of badly scarred areas is permanent. In a few instances infection spreads to the anterior horn or nerve root and muscles are paralyzed, usually in the shoulder and arm.

The gasserian ganglion and the ophthalmic division of the trigeminal nerve may be involved. Rash usually appears on the forehead and scalp but may cause corneal ulceration and serious inflammation of the globe. Ptosis and muscular paralysis have been observed. Geniculate zoster is ordinarily associated with an eruption over the tympanic membrane, meatus, and external ear and sometimes with facial paralysis.

* Herpes zoster. Practitioner 159:122-127, 1947.

Encephalitis, usually a complication of gasserian or cervical zoster, may affect the pons, medulla, cerebellum, thalamus, hypothalamus, and even the cortex, with such effects as confusion, drowsiness, hemiplegia, cerebellar disturbance, and an Argyll Robertson pupil.

Incomplete transverse myelitis may produce motor weakness in one leg and sensory loss over the other. Sphincteric control of the bladder may be impaired.

During the active stage of disease the spinal fluid contains about 25 lymphocytes per cubic millimeter and the total protein is sometimes slightly increased.

An elderly patient should be kept in bed for a week or more. In all cases the skin is dusted with fine talc and protected by collodion, zinc gelatin paste, or a thick layer of cotton wool. When crusting begins, ammoniated mercury paste may be applied. Infected lesions are treated with gentian violet or penicillin cream; cellulitis requires parenteral penicillin with or without the administration of sulfonamides, orally.

Pain is sometimes abolished by 0.5 to 1 cc. of pituitrin given once or twice daily. Salicylates and other analgesics are given in the preeruptive and eruptive stages. For intractable postherpetic neuralgia analgesics in full dosage are tried first. Older persons may require opiates.

Bromides are undesirable and the effects of ultraviolet, radiant heat, and roentgen therapy disappointing. Even after injection, section of nerve roots or ganglia, or cordotomy pain may persist.

Drug Sensitivity with Asthma

LOUIS E. PRICKMAN, M.D., AND JOHN L. MORGAN, M.D.*

UNUSUAL and sometimes dangerous reactions to drugs are apt to occur with asthmatic subjects. Of 17 consecutive cases of asthma sufficiently severe to warrant hospitalization, Louis E. Prickman, M.D., and John L. Morgan, M.D., of the Mayo Foundation, Rochester, Minn., found 12 with abnormal reactions, varied in kind and degree, to at least one frequently prescribed drug.

The responsible drugs were aspirin 5, iodide 5, morphine sulfate 4, aminophylline 3, iodochlorol 1, bromide 1, chloral 1, benadryl 1, pyribenzamine 1, and sulfanilamide 1.

The only safe procedure is to accept the patient's story of drug sensitivity. The drug and the type of reaction should be described. All records should be stamped to indicate the type of drug sensitivity, and personnel administering to patients should be instructed never to give the offending drugs.

* Intolerance to common drugs in asthma—a clinic. M. Clin. North America 31:954-961, 1947.

Carotid Sinus Syndrome

HARRY L. SMITH, M.D.*
Mayo Clinic, Rochester, Minn.

PRESSURE of the neck muscles occasioned by twisting of the head, carrying a load on the shoulders, or the constriction of a tight collar may stimulate a hypersensitive carotid sinus and induce changes in the cardiac conduction system. Sudden slowing of the heart rate, heart block of varying degree, and long periods of cardiac standstill are the usual effects. Bradycardia is sufficient to cause syncope in about half the cases.

The carotid reflex is never fatal; recovery is usually spontaneous. Reassurance and elimination of the precipitating element are sufficient in mild cases. Medication may be necessary to suppress reflex activity, and surgical therapy, although not entirely satisfactory, may be attempted in cases unaffected by other measures.

The condition, most common after middle age, has a predilection for males. Diagnosis is made from description of attacks and from reproduction of the symptoms by pressure applied to either carotid sinus. With the patient seated, head tipped back from the side to be tested, Harry L. Smith, M.D., presses his thumb just below the angle of the jaw at the level of the upper border of the thyroid cartilage. Characteristic response occurs in ten to twenty-five seconds.

Loss of consciousness is usually preceded by weakness, vertigo, spots before the eyes, and epigastric distress, often with pallor, profuse perspiration, and numbness of hands and feet. During unconsciousness pupils dilate. Convulsions may occur but rarely are accompanied by tongue biting or loss of sphincter control.

Breathing becomes deep and labored. During induced syncope the blood pressure usually is depressed but occasionally rises a little. Temporary exophthalmos may occur.

The spontaneous syncope usually lasts for only a minute or two but may persist for twenty minutes. The number and severity of attacks depend upon the nature of the inciting agency and the sensitivity of the carotid sinus. In some cases attacks are mild and infrequent, in others, severe and numerous.

If attacks interfere with normal activity, the mechanism of the attacks is explained and the provocative conditions are corrected. The patient is advised not to stoop and to avoid sudden turning of the head, looking up, or similar movement that would cause constriction of the neck.

Medication is indicated if attacks are severe. Phenobarbital may be given to dull the reflex response. For refractive cases, the carotid sinus may be surgically denervated in situ, or by intracranial section of the glossopharyngeal, IX cranial, nerve.

* A consideration of the hyperactive carotid sinus reflex syndrome. M. Clin. North America 31:841-844, 1947.

MEDICINE

MYASTHENIA GRAVIS . . . Improvement of deglutition after subcutaneous injection of neostigmine indicates that myasthenia gravis is responsible for dysphagia in particular instances. Fluoroscopic observation of ability, after previous failures, to swallow a medium thin barium paste twenty or thirty minutes after neostigmine injection, a feat otherwise impossible, is evidence that the neuromuscular block characteristic of myasthenia has been released. For the test, Henry R. Viets, M.D., of the Massachusetts General Hospital, Boston, recommends 1.5 mg. of neostigmine sulfate with 0.6 mg. of atropine sulfate. Additional atropine sulfate should be available for use in event of a general neostigmine reaction in sensitive patients or in those who do not have myasthenia gravis. In the event of a positive diagnosis, treatment may be continued by 1.0-cc. injections of 0.5 mg., as a 1:2,000 solution of neostigmine, as often as necessary.

J.A.M.A. 134:987-992, 1947.

PULMONARY EMBOLISM . . . Contrary to general opinion, pulmonary embolism occurs more frequently among cases treated medically than surgically. During a ten-year period at the Massachusetts General Hospital more than half of all patients with emboli were medical patients, whereas the hospital population consisted of more than twice as many surgical as medical cases. To prevent recurrent embolism Jacques Carlotti, M.D., and associates of Boston interrupt the common femoral veins distal to the saphenofemoral junction and proximal to the profunda femoris.

J.A.M.A. 134:1447-1452, 1947.

GASTRIC SECRETION IN THE AGED . . . Despite a tendency toward diminished acidity in aged persons, hyperchlorhydria is not uncommon. In a study of 47 persons over sixty-five years of age, Henry A. Rafsky, M.D., and Michael Weingarten, M.D., of the Hospital and Home of the Daughters of Jacob, New York City, found that only 17% had true achlorhydria and 12.7% had hyperchlorhydria after a meal of bread and water. No case of achylia gastrica was found, and milk-coagulating activity was present in all subjects with histamine achlorhydria. Of 2 achlorhydric patients whose gastric secretions had no proteolytic activity after fasting, 1 had such activity after histamine stimulation.

Gastroenterology 8:348-352, 1947.

TOXICITY OF ORAL IRON . . . Few medicinal substances have therapeutic indexes as large as that of iron preparations taken by mouth. The gap between curative and harmful doses is extremely wide and the range between preventive and lethal amounts is even greater. Investigation of the toxicity of ferrous and ferric compounds in animals leads G. F. Somers, Ph.C., of Greenford, Middlesex, England, to believe that anything less than several hundred of the conventional tablets containing a total of 30 gm. or more of ferrous sulfate, taken all at one time when the stomach is empty is harmless for adults. Obviously the injurious amount for children is much smaller and the toxic limit should be reckoned in tens of tablets. Consequently, iron preparations should be kept out of reach of children.

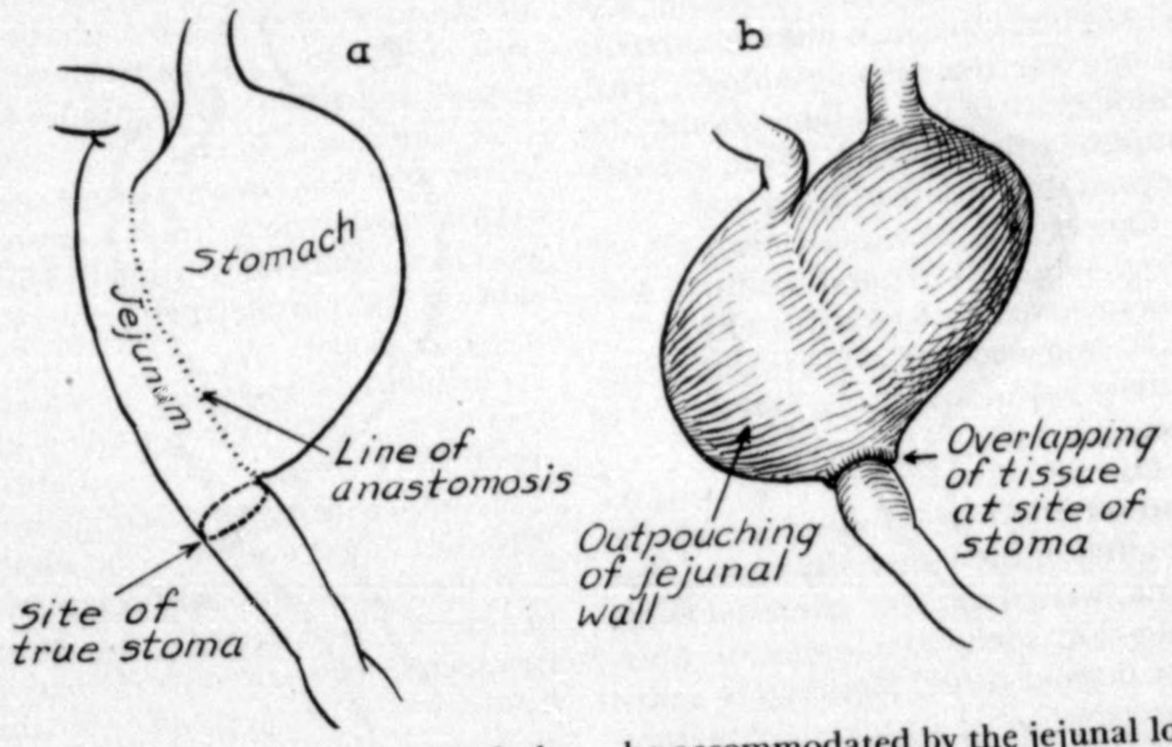
Brit. M. J. 4518:201-203, 1947.

Gastric Stoma after Partial Gastrectomy

CHARLES S. KENNEDY, M.D., ROLAND P. REYNOLDS, M.D., AND MEYER O. CANTOR, M.D.*

Grace Hospital, Detroit

WITH all technics for gastrojejunal anastomosis, the size of the true stoma is the same. The outlet can be no larger than the lumen of the jejunum at the lower end of the anastomosis (Fig. a). Because of the small diameter of the stoma, Charles S. Kennedy, M.D., Roland P. Reynolds, M.D., and Meyer O. Cantor, M.D., conclude that the operation must be carefully executed to prevent rotation of the jejunum onto the greater curvature and consequent obstruction.



A small amount of edema around the true stoma readily impedes the passage of food. Even with no swelling, the opening does not permit rapid emptying of gastric contents. Patients, therefore, should be warned against eating solid foods too quickly or in too large quantities. On the other hand, liquids may pass through the stoma in quantities greater than can be accommodated by the jejunal loop, and epigastric distress results.

In time, the adjacent jejunal loop distends and the residual gastric pouch dilates to permit retention of appreciable amounts of food. The true stoma is displaced to the left and develops a sphincteric action, with peristalsis, similar to that of the pylorus. Figure b shows the arrangement of the parts four years after a Polya operation.

* A study of the gastric stoma after partial gastrectomy. Surgery 22:41-47, 1947.

Treatment for Cancer of the Thyroid

ROBERT C. HORN, JR., M.D., ROBERT F. WELTY, M.D., FRANK P. BROOKS, M.D., JONATHAN E. RHOADS, M.D., AND EUGENE P. PENDERGRASS, M.D.*

University of Pennsylvania, Philadelphia

THYROID adenomas are favored sites for cancer. Recent decline in operative risk and discovery of unsuspected carcinomas in excised glands justify removal of all nodular goiters when surgically possible. Extent of involvement is more important to outcome than the pathologic type. Postoperative irradiation should be employed if neoplastic tissue extends beyond the capsule of the gland.

Cancer was present in over 5% of 1,135 surgically treated nodular goiters reviewed by Robert C. Horn, Jr., M.D., and associates. When malignant activity was of low grade, recovery was complete.

The majority of 71 malignant tumors of the thyroid observed at the Hospital of the University of Pennsylvania were papillary carcinomas or malignant adenomas; 3 were in aberrant thyroid tissue. Moderately active cancers included 18 adenocarcinomas. High-grade malignancy was represented by a few giant or spindle-cell carcinomas and 1 small-cell carcinoma.

Although surgical excision is the preferred treatment, radiation is also effective, especially if the neoplasm is a papillary carcinoma. Often extension of an incompletely removed tumor may be arrested by postoperative roentgen therapy. Radiation is of questionable value, however, for a malignant adenoma or papillary carcinoma confined within the capsule and which is not detectable except by microscopic examination.

Radiation therapy was given in 52 of the 71 cases. For most tumors the rule is 200 kv., 15 ma., 0.5 mm. of copper and 1 mm. of aluminum filtration added, and 50 cm. T.S.D. An anterior and two lateral portals are directed to the neck, and a posterior portal is sometimes added. Dimensions of the portals are 10 by 13 cm. or 15 by 16 cm.

Ordinarily from 1,500 to 2,000 air roentgens is given per portal in daily amounts of 200 to one or two portals. Total dosage is about 5,000 air roentgens, but larger doses may be needed.

If the surgical procedure is limited to simple exploration and biopsy, treatment is begun at once. Otherwise, irradiation is delayed two or three months to allow time for healing.

The total dose in cases of five-year survival was about 6,000 air roentgens. The dosage for lateral aberrant thyroid carcinoma is 2,000 to 3,000 air roentgens to each of two or three portals.

Pulmonary metastases render the lungs especially susceptible to radiation pneumonitis, and patients with such complications should be irradiated with extreme caution.

* Carcinoma of the thyroid. Ann. Surg. 126:140-155, 1947.

Carcinoma of the Lips

JOHN B. ERICH, M.D.*
Mayo Clinic, Rochester, Minn.

EPITHELIOMA of the lip frequently begins as an apparently harmless lesion and cervical node metastasis may occur before the cancerous condition is recognized. Thickened leukoplakia, keratoses, chronic scaling, ulcer lasting more than three weeks, and recurrent fissure, all of which are potentially malignant, should be excised and microscopically examined. Grading of tumors is extremely important, particularly in treatment of regional lymph nodes. Moreover, malignant neoplasms of low grade are radioresistant.

The usual site of labial carcinoma is the lower lip; the tumor is almost entirely confined to men. The most frequent causes seem to be long exposure to weather or irritation by tobacco. Application of caustic drugs, especially silver nitrate, may change a slow growing cancer to a highly active form or stimulate early metastasis.

The neoplasms may be well circumscribed, elevated, and ulcerated, with indurated margins; some are deeply ulcerated and inflamed, others are large fungating masses. The more active types may resemble tuberculous or syphilitic lesions. If the growth is fairly large and diagnosis uncertain, biopsy should be performed before radical excision.

An excised epithelioma should be examined by a pathologist before the wound is closed. The majority of lip cancers are grade 1 and 2, Broders' classification. Many apparently nonmalignant lesions prove to be grade 1 squamous cell epithelioma in situ.

Even if the precancerous lesion involves only a small portion of the lip, all the exposed mucous membrane is removed instead of an ellipse of tissue. After local anesthesia the mucous membrane at the edge of the wound is undermined, drawn forward to cover the denuded area, and sutured to the skin. John B. Erich, M.D., reports that in several hundred operations of this type performed at the Mayo Clinic no subsequent epithelioma appeared.

Small carcinomas of the upper lip are removed by a V-shaped incision and the edges of the wound are approximated. After excision of a large central growth, flaps of the full thickness of the cheek are moved across to the median line. If the defect is on one side a wedge of tissue is transferred from the lower lip. Large wounds may be repaired by a forehead flap or a clavicular or cervical tube flap.

Carcinoma of the lower lip is removed with a V-shaped incision. Plastic repair may involve lateral incision of the upper lip and cheek at both angles of the mouth and removal of a triangular portion of tissue at each angle.

A large tumor invading the mandible may be excised by a cutting

* Treatment of carcinoma of the lips. S. Clin. North America 27:995-1006, 1947.

cautery and the underlying periosteum and bone are electrocoagulated. In two or three months a sequestrum of bone is taken out and a year later the lower lip and chin may be reconstructed from a chest tube flap.

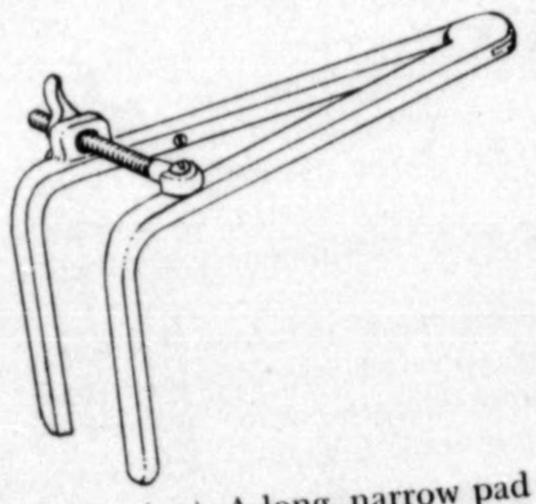
Radon seeds, radium plaques, and external irradiation are used for the primary tumor only when neoplasms are large and highly malignant or when the patients cannot tolerate operation.

The squamous cell epitheliomas of grades 2 and 3 are so likely to metastasize that cervical nodes are excised in all cases. Submental and submaxillary nodes and those along the upper part of the jugular vein are taken out on both sides. When metastatic tissue is found in surgical specimens, deep cervical nodes on the involved side are completely removed by block dissection.

Grade 1 neoplasms do not metastasize unless activated by infection or inflammation, and operation is hardly justified in grade 4 malignancy. External irradiation of the neck is advisable if the primary tumor is grade 4, cervical nodes are extensively involved, the patient is over seventy, or the general physical condition is poor. A solitary metastatic node may disappear after insertion of radon seeds worth 1 millicurie each and spaced 1 cm. apart.

Clamp for Crushing the Colostomy Spur

V. J. KINSELLA, M.D., SYDNEY, AUSTRALIA*



SAFETY and comfort of a patient with a colostomy are enhanced if the spur is crushed by a clamp with blades perpendicular to long handles. The bent blades permit the handles to rest snugly against the abdominal wall and the length of the handles allows secure fixation by strapping.

V. J. Kinsella, M.D., uses a clamp with 14-cm. handles and 9-cm. blades set at right angles (see illustration). A long, narrow pad is placed under the handles and folded up and around to leave the skin exposed for strapping. The handles are firmly fixed with adhesive tape. A thick pad is then laid over the abdomen and held in place with a binder.

Sitting in bed is possible without disturbing the clamp, and is comfortable.

* A clamp for crushing the colostomy spur. Australian & New Zealand J. Surg. 16:283-284, 1947.

Ovarian Tumors During Pregnancy

HENRY C. FALK, M.D., AND IRVING A. BUNKIN, M.D.*
New York University and Beth Israel and Harlem hospitals, New York City

OVARIAN tumors demand more consideration in pregnant than in nonpregnant women. Although generally no barrier to conception and often not troublesome throughout pregnancy, the potential dangers to the gravid patient are: torsion of the pedicle, intracystic hemorrhage, suppuration, and obstruction at delivery.

The trend at present is toward radical treatment. The size of the tumor is an important factor. The criteria for extirpation are the same as for a nonpregnant woman, except that the need for removal is more urgent.

In general, Henry C. Falk, M.D., and Irving A. Bunkin, M.D., believe that diagnosis and treatment are facilitated by dividing cases of ovarian tumors into four categories:

1] *When pregnancy is contemplated* small tumors rarely need to be excised; 95% of small cysts, 5 cm. or less in diameter, are functional and need be removed only upon indication of enlargement, torsion, hemorrhage, or malignancy. Pregnancy often follows removal of a single ovarian cyst in a previously sterile patient; enucleation is the preferred procedure. Solid tumors, single or bilateral, are often malignant and should be removed promptly. Surgery is always indicated for dermoids, which cause 25 to 30% of reported complications.

2] *When the tumor is discovered during the first trimester,* surgery should be delayed until the sixteenth week, as thus early in pregnancy the tumor might contain the corpus luteum. Inhalation anesthesia, such as cyclopropane, causes the least anoxia. Spinal anesthesia is contraindicated. Postoperatively the patient should be kept well sedated with morphine. In the event of torsion of a pedicle or uterine impaction below the tumor, when surgery cannot be delayed, preoperatively at least 5 mg. of progestin should be given daily intramuscularly.

3] *When the tumor is discovered during the second trimester,* treatment is similar to that for the second group, except that surgery need not be delayed out of consideration for the corpus luteum. Oophorectomy, however, is unwarranted unless an emergency arises.

4] *When the tumor is discovered early in the last trimester,* operation, except in emergencies, should be deferred, as the fetus is not yet viable. If the tumor is not obstructing the birth canal, normal delivery is awaited; occasionally, when interference is anticipated, spontaneous dislodgment may be effected by the knee-chest or Trendelenburg position. Attempts at forceful displacement may cause rupture with dissemination of irritating material into the peritoneal cavity.

* The management of ovarian tumors complicating pregnancy. Am. J. Obst. & Gynec. 54:82-87, 1947.

For an immobile cyst low in the pelvis, cesarean section with simultaneous removal of the tumor is the only choice. An ovarian cyst that was not disturbed before delivery should be removed during the postpartum hospital period because of the liability of torsion or infection.

Surgical Treatment of Abortion

J. McD. Corston, M.B., and John Stallworthy, M.S.*
Radcliffe Infirmary, Oxford, England

When abortion is inevitable or has been incomplete or septic, the uterus should be evacuated surgically. The procedure is quite as safe as allowing the womb to empty spontaneously and requires a much shorter hospital stay.

Although blood loss had been severe in many instances, only 1 death occurred in 600 consecutive cases observed by J. McD. Corston, M.B., and John Stallworthy, M.S. Forty-two patients were infected when admitted and 71 required transfusions.

Abortion is considered inevitable if bleeding has begun, the uterus is contracting, and the internal os is dilated. Incomplete abortion is indicated by persistent hemorrhage, bulky uterus, and a patulous cervical canal or when the material passed contains little or no placental tissue. Local or general infection is manifest by fever, offensive or purulent discharge, or pelvic pain and tenderness.

Unnecessary handling is avoided, emergency treatment is given, and blood transfusion begun in the admitting room. Rh immunization is prevented by preliminary tests or use of Rh-negative blood. For shock, blood may be injected intravenously by pressure.

When infection is present, operation is postponed for twelve to twenty-four hours unless bleeding is severe. After an initial 2-gm. dose of a sulfonamide, 1 gm. is administered every four hours. Intravenous anesthesia is preferred.

If the cervical canal is open, placental tissue is removed with the gloved finger. If not, the cervix is exposed and cleaned, 0.5 mg. of ergonovine injected, and the canal dilated to the size of a No. 14 or 16 Hegar dilator. Sponge forceps are used to clean the uterine cavity, which is then flushed and packed.

If tissues are infected, the uterus is packed with a sterile 2-inch gauze impregnated with 10 gm. of sulfathiazole powder. Bleeding is thus prevented, and when the pack is taken out, six hours later, the remaining bits of debris come with it.

* The treatment of inevitable, incomplete, and septic abortion. Brit. M. J. 4515:89-91, 1947.

Abdominal Pain in Children

J. P. CAIN, JR., M.D.*
Mullins, S. C.

INFLAMMATION of the appendix easily ranks first among surgical causes of abdominal pain in children. Early diagnosis is more difficult than with adults and more imperative, since untreated appendicitis runs a swifter and deadlier course in the young. Because the child's ability to wall off intraperitoneal inflammation is poor, immediate operation is essential with appendicitis, peritonitis, obstruction, or hemorrhage. When abdominal pain cannot be diagnosed after history and physical examination, J. P. Cain, Jr., M.D., believes that the child should be hospitalized until the need for surgery has been definitely excluded.

Character of the pain must be assiduously elicited. Appendical pain is usually first diffuse, later localized in the right side. Pain from obstruction is recurrent and colicky and may be accompanied by periodic vomiting. Generalized colicky pain with diarrhea and antecedent nausea may indicate enteritis; if the pain comes before the nausea and is localized in the right lower quadrant, appendicitis is probably the cause, despite diarrhea. With appendicitis, pain does not endure indefinitely; appendicitis is not static, it becomes worse or better. Repeated attacks of pain with nausea may be due to recurrent appendicitis, with constant danger of rupture, or be caused by intestinal parasites.

Fever usually appears late with acute abdominal conditions, heralding peritonitis; early fever suggests a generalized infectious disease, particularly of the upper respiratory tract.

Constipation cannot be ignored as a source of severe abdominal pain. Intestinal obstruction prevents passage of stools or flatus, except that the bowel sometimes empties below the obstruction. Obstructive symptoms with bloody stools are almost diagnostic of intussusception. Tarry stools indicate high ulceration; clay-colored feces suggest biliary disease.

Intense pain and rigid abdomen may be caused by a spider bite.

Physical examination should begin with the abdomen. To prevent defensive tenseness by the child, regions likely to be normal are examined first. The entire hand rather than probing fingers should be used.

A soft abdomen with no localized tenderness usually means a beginning intussusception; a tense, distended abdomen indicates peritonitis or obstruction. Localized tenderness, with no spasm or rigidity, may signify a retrocecal appendix. Since the appendix is proportionately larger in children than adults, the most tender spot may not lie over McBurney's point. A mass in the right lower quadrant may be an appendical abscess, in the midline or to the left, an invaginated gut.

* Abdominal pain in children. J. South Carolina M. A. 43:227-231, 1947.

ORTHOPEDICS

In doubtful cases of abdominal pain, rectal examination often elicits points of tenderness and aids in interpreting pelvic masses. Study of the chest may eliminate pneumonia and pleurisy as possible sources of the pain. Otolaryngologic examination may often reveal otitis media as the cause of colicky enteritis or acute follicular tonsillitis responsible for umbilical pain. Lesions of the lower extremities may cause femoral or inguinal adenitis simulating appendicitis.

A few simple laboratory tests aid differentiation of abdominal conditions and can be done in the office. Finding of acetone in the urine in cases of enteritis or undiagnosed vomiting calls for increased fluids and glucose. When surgery is in doubt an increase in acetone in spite of fluid administration indicates operative intervention. Blood in the urine after upper respiratory infections may mean nephritis; bile suggests catarrhal jaundice; albuminuria, a general febrile condition; large clumps of pus, kidney infection.

The white count is the only essential hematologic examination. Although elevation often determines diagnosis, a normal or low count does not eliminate possibility of acute surgical conditions in the presence of suspicious physical findings.

Vasomotor Hydrarthroses

ETIENNE MAY, M.D., AND J. ROBIN, M.D., PARIS*

FREQUENT cure of periodic hydrarthrosis of the knee joint by simple aspiration or irradiation indicates vasomotor participation in causation. Observation of the condition of the blood vessels in the capsule, bursae, and synovial membrane when arthrotomies were done by Etienne May, M.D., and J. Robin, M.D., confirms the etiologic importance of vasomotor phenomena.

Albumin values of the excess joint fluid are elevated to 50 or 60 gm. per 1,000. Mononuclear cells, principally lymphocytes, predominate and may comprise up to 97% of the cells present.

Functional vasomotor hydrarthroses are usually recurrent. Typically, the joint swells every twelfth to fourteenth day, but periodicity is not an indispensable sign. Simple intermittent effusion may recur with great irregularity, or may persist continuously for prolonged periods. The disease has a predilection for women. Pregnancy often causes the affection to disappear.

Vasomotor reflex reaction probably initiates organic changes in the joints, especially after trauma. Osteophytes or ligamentous calcification may be the immediate cause of articular changes. Irradiation is the most effective treatment.

* Les hydarthroses vaso-motrices. Presse méd. 55:129-130, 1947.

Preliminary Report on the Bone Bank

LEONARD F. BUSH, M.D.*

New York Orthopaedic Hospital, New York City

BONES transplanted from one person to another grow as successfully as grafts taken from the patient's own skeletal system. Biopsy specimens after fusion reveal that the homogenous bone is absorbed or disintegrated and is gradually replaced by living bone cells. The devitalized grafted bone acts as a scaffold, stimulates osteogenesis, and provides the salts necessary for calcification of the callus.

Describing the advantages of bone banks, Leonard F. Bush, M.D., explains that, by use of a donor's bone, the patient is spared the surgery necessary to procure the graft, operative time is reduced, and possible complications from additional surgery are avoided.

Excellent results were obtained in 67 operations with homogenous bone grafts from the bone bank of the New York Orthopaedic Hospital. Complications, occurring in only 4 cases, could have been expected with similar use of autogenous bone. Syngenesious grafts were employed for 9 children with congenital pseudoarthrosis, osteogenesis imperfecta, or large bone cysts.

The following factors influence the behavior of homogenous grafts:

1] Formation of new bone occurs only when the grafts are in contact with living bone.

2] Grafts are more successful in the young than in the aged.

3] Sulfonamides inhibit calcification.

4] Cortical bone is best for stability, but cancellous bone is preferred for osteogenesis.

5] Blood type or the Rh factor does not influence the success or failure of the graft.

6] Bone washed or stored in Ringer's or saline solution is not successfully transplanted.

Bone is obtained for a bank by salvaging excess fragments removed during operations. Since certain precautions must be observed to assure freedom from disease and infection, a card index should be kept of the following data: donor's name and hospital number, source of the bone, Kline or Kahn reaction, history of the donor's recent illnesses and infections, and the weight of the bone and date of storage. A blood examination is particularly important since the spirochete of syphilis retains virulence after long periods of refrigeration at temperatures as low as −78° C.

Bone may be preserved at temperatures of 2° to 5° C. for as long as three weeks or by deep freezing at −25° C. indefinitely. The pieces of bone are stored under sterile conditions in a glass screw-top container, which is put in a similar larger bottle. Sterile rubber sheeting and gauze are placed over the top of the bottle and fastened with an elastic band. The containers prevent evaporation, sudden changes in

* The use of homogenous bone grafts. J. Bone & Joint Surg. 29:620-628, 1947.

temperature, and contamination at the time of grafting.

Bones are cleaned before storage and cut into small pieces when used. Cortical bone is usually cut into strips 1 to 2 inches in length and 1/16 to 1/8 inch in width for fusion.

Homogenous bone may be transferred directly from donor to recipient.

Minimal Spinal Anesthesia for Delivery

JOHN A. HAUGEN, M.D., AND RALPH C. BENSON, M.D.*

Minneapolis *San Francisco*

ALTHOUGH recognized as safe for the baby, regional anesthesia is often avoided in obstetrics because of technical difficulties in administration and possible hazard to the mother. However, John A. Haugen, M.D., and Ralph C. Benson, M.D., find that if a small dose of metycaine is specifically placed the usual difficulties associated with caudal anesthesia do not occur.

Injection requires but a few minutes; uterine and perineal anesthesia satisfactory for childbirth follows almost immediately. Uterine motor activity is unimpaired and subsequent vascular relaxation is not sufficient to permit fall of blood pressure or shock.

Contraindications include elective versions, disorders of spinal column or central nervous system, and cases of frank breech which might require a Pinard maneuver. Multiparas who have been delivered previously without episiotomy are also excepted. A method employing one-twentieth the ordinary amount for caudal anesthesia has been successfully used for 1,008 deliveries.

For primiparas the injection is usually given when the cervix is completely dilated and the head is on the perineum. An exception is made if descent has ceased long enough to warrant operative interference. Multiparas may be injected before cervical dilation is complete and the anesthesia, which lasts an hour, usually will suffice for episiotomy closure.

After spinal puncture through the first lumbar interspace, 1.5 cc. of a 1.5% solution of metycaine in Ringer's solution is injected through a 5-cc. syringe with a 22- or 20-gauge needle. Slow injection, between uterine contractions, localizes the anesthetic solution. The patient is then turned on her back; the head of the delivery table is raised 1 foot for ten minutes and then lowered again.

Injection into the first lumbar interspace blocks pain pathways from the uterus in the eleventh and twelfth thoracic nerves and within a few minutes sensory fibers of the second, third, and fourth sacral nerves are also anesthetized.

Anesthesia reaches a level between the umbilicus and the xyphoid. Abdominal muscles are not paralyzed. In some cases of incomplete anesthesia additional measures may be needed.

* Minimal spinal anesthesia in vaginal delivery. Am. J. Obst. & Gynec. 53:805-811, 1947.

Anesthesia for Maxillofacial Surgery

GEORGE A. FRIEDMAN, M.D.*
New York City

FACE or neck injury may block airways by distortion of parts or by inflammation and edema. Preoperative tracheotomy not only provides a convenient route for anesthesia but prevents respiratory obstruction during and after surgical repair and may be lifesaving. Indication for tracheotomy is acute respiratory obstruction, actual or imminent.

George A. Friedman, M.D., intubates through tracheotomy under the following conditions:

1] Injury of the trachea, larynx, pharynx, or base of the tongue.

2] Obstruction of airway by large foreign body that cannot be removed under direct vision.

3] Extensive fracture of the mandible that hinders manipulation of the tongue.

4] Extensive wounds of facial soft tissues or fractures of facial bones which have blocked or are liable to close the nasal passages.

5] Injury to the recurrent laryngeal or vagus nerve with danger of vocal cord paralysis.

6] Surgical emphysema or parapharyngeal infection from penetrating wounds.

For access to the site of entry, below the thyroid isthmus at the fifth cartilaginous ring, the neck is overextended by elevating the shoulders. After infiltration with 2% procaine solution with epinephrine, the skin is incised horizontally, and the fascia vertically. The trachea is opened with an upward stroke, and if possible a small oval window is fashioned.

The tracheotomy tube is guided into the aperture by an introducer, which is subsequently withdrawn, and the inner anesthetic tube inserted. One or two stitches may be necessary for fixation. The tube is wrapped with petrolatum gauze and fastened by tapes tied around the neck. Moist gauze is laid over the opening. For emergency use an extra tube and inner tube are fastened to the neck.

After general inhalation anesthesia, suction is always continued until reflexes are elicited. When able to take care of himself, the patient is taught how to manage the tube.

Since the coughing is advantageous, sedatives and narcotics are used sparingly. Secretions are aspirated from the tube at regular intervals and the outer tube is changed daily to prevent ulceration and hemorrhage.

At military field and evacuation hospitals in Europe, only 2 patients died of several hundred who submitted to maxillofacial surgery. Typical injuries necessitating tracheotomy: [1] severe gunshot wounds with lacerated tongue, broken mandible, and edema of aryepiglottic folds, [2] perforating shell wounds of face and fractures involving frontal sinuses, and [3] gunshot wounds of the neck.

* Tracheotomy in maxillofacial surgery. Surgery 21:755-769, 1947.

Exercise and Arthritis

GEORGE MORRIS PIERSOL, M.D., AND JOSEPH LEE HOLLANDER, M.D.*
University of Pennsylvania, Philadelphia

EXERCISE, often neglected in treatment of rheumatoid arthritis, is most important in preventing and correcting atrophy and ankylosis. Balance between rest and exercise must be planned for each patient, report George Morris Piersol, M.D., and Joseph Lee Hollander, M.D.

Bed rest is often advisable during the acute stage of the disease, but many patients date the onset of deformities from restriction in bed or a plaster cast. The period of confinement should be brief, and proper posture must be maintained by a firm mattress, without supporting pillows for knees or shoulders.

Local heat, muscle massage, and underwater exercises in a Hubbard tank are helpful. Muscle exercises can be performed many times each day by bed patients. All joints, even when acutely inflamed, should receive gentle exercise several times daily by slow, guided motions, never forced. Salicylates are invaluable because analgesia increases the ability to move.

Only excruciating pain need prevent exercise, and then only for a few days. Few, if any, joints have been injured by too early exercise, properly done. Many have been deformed by delay in mobilization.

At the first interview a preliminary balance should be set between the maximum activity possible without excessive fatigue or residual increase of pain or muscle spasm and the minimum rest necessary before activity can be renewed. Too frequently, diathermy and massage are casually recommended, with no specific directions. Exercises should be arranged on a daily schedule, not three or four times a week. Both general and local corrective exercises are needed. The amount should be gradually increased. A specialist in physical medicine can plan the program for the practitioner, and the patient or a member of the family may be taught the exercises.

The patient should be convinced that exercise is as important as medicine and that over-rest is dangerous. Frequent goniometric measurements of the range of motion help determine contractures or improvement.

Just how exercise preserves maximal joint function is not entirely understood. Lesions of rheumatoid arthritis are found in muscles, fibrous tissues, and even nerve sheaths, as well as in synovial membranes and bone. In a bedridden patient the nitrogen balance becomes negative, indicating breakdown of tissue, and essential increase of muscular strength is hindered. Continued motion of arthritic joints prevents adhesions in the joint space. Gentle stretching motion prevents contraction of the capsular ligaments or shortening of tendons.

* The optimum rest-exercise balance in the treatment of rheumatoid arthritis. Arch. Phys. Med. 28:500-506, 1947.

Classification of the Psychoneuroses

H. ROY BRILLINGER, M.D.*
Ontario Hospital, Hamilton, Ontario

PSYCHONEUROSIS is an emotion gone wrong. A frustrating experience becomes an actual illness when inner unrest disturbs physiologic functions. Possibly affected is sleep, sex life, appetite, digestion, or capacity for work. Aberrant behavior of one or several habitual and customary performances arouses suspicion of something vitally wrong with stomach, heart, nerves, or other organs. The original emotional source is usually forgotten.

The psychoneurotic individual is not malingering but is sick, as the general practitioner willingly admits. The physician's problem is how to garner from the voluminous, complex, and often conflicting mass of opinion and advice some information on which to base sensible treatment of the ever increasing number of organically sound patients with somatic symptoms.

The simplified descriptions prepared by H. Roy Brillinger, M.D., from the amended classification used by the American Psychiatric Association are designed to clarify this problem. All psychoneurotic conditions are arranged in seven groups:

Hysteria is the conversion of mental conflict into physical phenomena which provide the excuse for avoiding an unbearable situation. Common manifestations are muscle paralysis or paresis, incoordination, anesthesia, loss of special senses, vomiting, diarrhea, convulsions, delirium, or mental dissociation. These symptoms are irrelevantly, irrationally, and inconsistently expressed. When anxiety is added to mental conflict, *conversion* hysteria becomes *anxiety* hysteria. A revelation of the cause, which is unknown to the patient, may result in cure or provoke new symptoms.

Psychasthenia or compulsive states, characterized by morbid fears, obsessive thoughts, and such compulsive acts as repeating meaningless actions, thoughts, or words, spring from disinclination to make decisions. Until the cause is unearthed and self-confidence restored, all decisions must be made for such patients.

Neurasthenia is expressed by unremittent fatigue. Physical activity is exhausting and mental concentration impossible. Sleep does not rest or relax. The invariable indication of neurasthenic fatigue is the statement, "I am just as tired when I wake up as when I go to bed." Another distinguishing symptom is sensation of pressure in the head and pains in the neck and spine. A deep state of depression, with suicidal impulses, may be reached. The condition is the result of constant exposure to an insoluble situation or of revolt against inevitable circumstances. Physical removal from the habitual environment is often necessary before adjustment and acceptance are possible.

* A working concept of the psychoneuroses. Canad. M.A.J. 57:142-147, 1947.

Hypochondriasis, in which the patient's health is his chief hobby, is benefited only by an absorbing new interest.

Reactive depression, an abnormally sad reaction to grief and sorrow, often with anxiety and physical complaints, usually vanishes with fresh interests. Electroshock therapy may help.

The *anxiety state* is an acute, *anxiety neurosis* a chronic, fear reaction with palpitation, breathlessness, tremors, sweating, tense muscles, weakness, headaches, hypertension, gastric hyperacidity and spasm, and visual symptoms, which disappear when the cause of fear is removed.

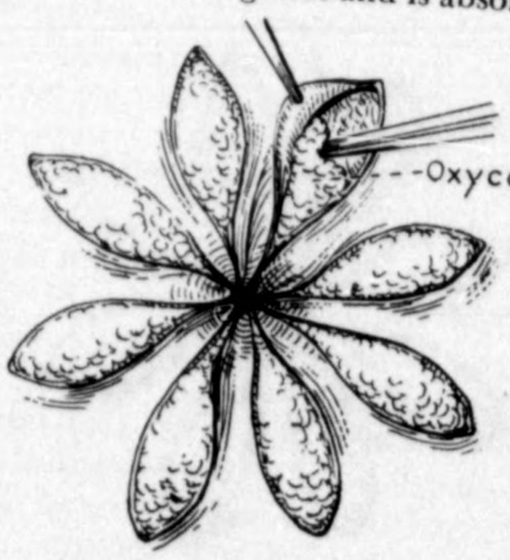
Many patients have *mixed psychoneuroses* that do not conform to any textbook definition but are combinations of several disorders.

When confidence is gained, an emotional recital of complaints provides valuable catharsis. Reassurance must be based on a logical explanation of how emotions cause physical symptoms. Many patients are helped by a carefully prepared schedule; others by aids to relaxation, such as warm baths and drinks and sparing use of sedatives. For restless anxiety and mild depression, with weight loss and anorexia, subshock doses of insulin may be beneficial. Emotionally excited or depressed patients are helped by electroshock.

Oxidized Cellulose Packing for Pruritus Ani

CLIFFORD C. WILSON, M.D.*

REGENERATION of nerves severed to relieve pruritus ani may be retarded by subcutaneous packing with oxidized cellulose. Oxycel, which disintegrates and is absorbed in about a week, keeps nerve fibers adequately separated without harm to overlying skin.



After making radial incisions through the skin down to the mucocutaneous junction, Clifford C. Wilson, M.D., of Kansas City, Mo., undercuts and packs the flaps (see illustration). No skin is removed. The entire undercut surface is covered with one piece of packing. Bleeding is controlled by the hemostatic properties of oxycel.

Partial severance of the external sphincter is necessary to allow for a slight stenosis from the healing. Finger dilatations should be frequent until the caliber of the anal canal is normal.

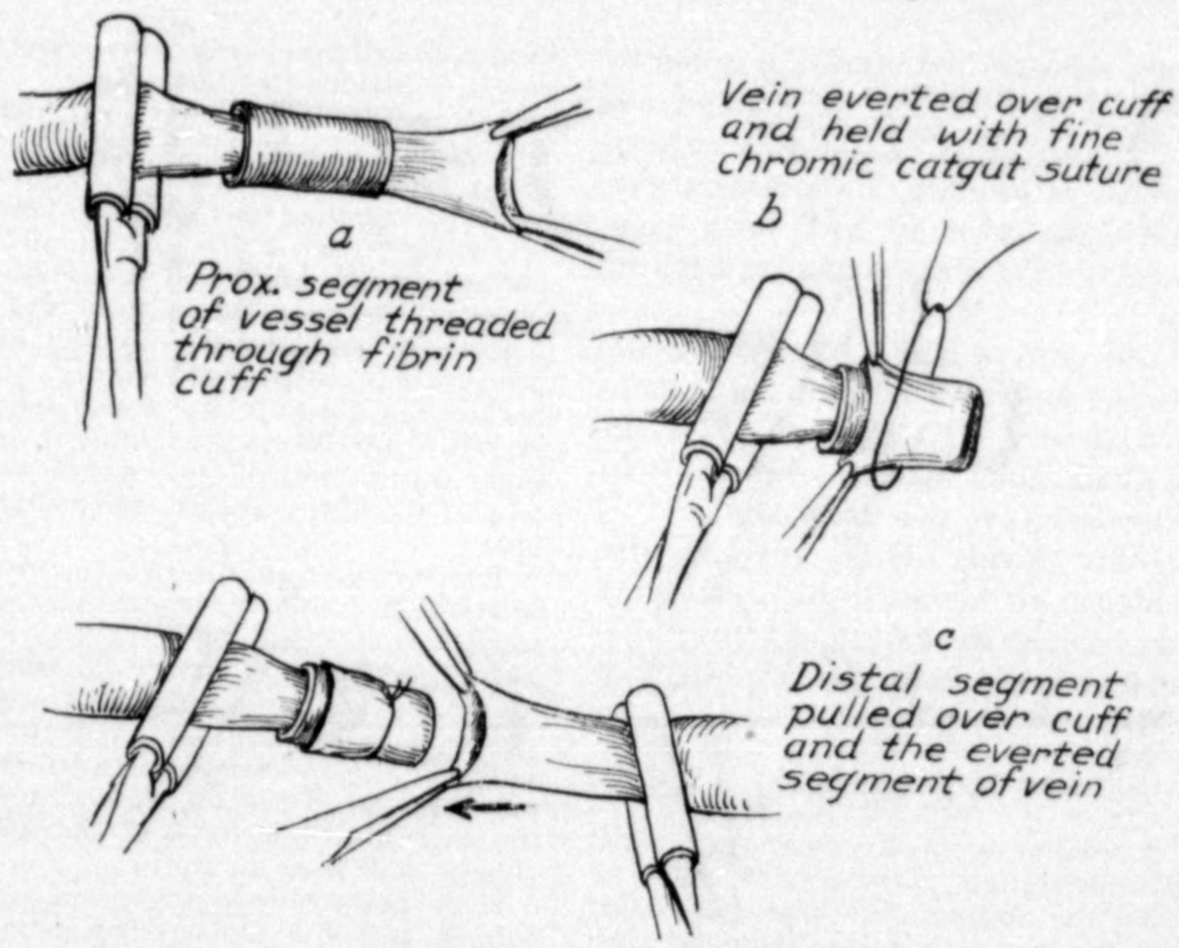
* The treatment of pruritus ani. J. Missouri M. A. 44:575-576, 1947.

Fibrin Tubes for Vein Anastomosis

ORVAR SWENSON, M.D., AND ROBERT E. GROSS, M.D.*
Children's Hospital and Harvard Medical School, Boston

THE undisclosed, half-minute, non-suture technic of anastomosing blood vessels, about which claims have been made in Russian medical literature, may have an American counterpart in a method employing fibrin tubes, described by Orvar Swenson, M.D., and Robert E. Gross, M.D.

Fibrin tubes were used to unite segments of large blood vessels in dogs. The technic is shown in the illustration. In 26 of 27 dogs, the fibrin disappeared within six or seven weeks, leaving a lumen of adequate size. In one dog the lumen at the site of anastomosis was obliterated by fibrosis from extensive regional infection.



The fibrin tubes should be particularly useful for vessel anastomoses in children. The vessel may enlarge in diameter as the child grows, since the lumen is not constricted as when metal cuffs are employed.

To construct the tubes, fibrin is made plastic by water and pressed in-

* Absorbable fibrin tubes for vein anastomoses. Surgery 22:137-143, 1947.

to a thin sheet. Strips of fibrin film 2 or 3 cm. wide are rolled around a glass rod of the desired diameter until the wall of the tube is 0.5 to 1.0 mm. thick. The seamless fibrin tube thus produced is left on the rod and placed in a test tube and steam sterilized. The cuff is removed from the rod under sterile conditions and sealed in a container for indefinite storage.

Unusual First Symptom of Goiter

JOHN DEVINE, M.D.*
Alfred Hospital, Melbourne, Australia

AN unusual first symptom noted by a patient with toxic goiter was an increasing inability to keep a glass eye in place. The artificial eye, which the patient had worn comfortably for twenty years, kept falling out.

The patient had a bilateral adenomatous goiter with some indications of toxicosis. After thyroidectomy the fat diminished to such an extent that a new glass eye was necessary.

John Devine, M.D., presents this evidence to support the contention that increase in amount of retroorbital fat may be the cause of exophthalmos with hyperthyroidism.

CASE REPORT

A woman aged sixty-four years asked in consultation whether she could be given the address of a glass-eye maker, because the glass eye which she had worn for twenty years now kept falling out. Inquiry into her history revealed that she had come from Tasmania and that for many years she had had a swelling in her neck.

With difficulty it was elicited that she was growing more upset than she used to be and that she was short of breath on exertion and had a choking sensation in the neck. She also stated that the neck swelling had become very large until a month or two previously, when, after she rested, it became smaller again.

The patient had a large, soft, diffuse enlargement of both lobes of the thyroid gland with some apparent intrathoracic extension. She had no changes in her one eye; a slight tremor was present, and she had no signs of abnormal sweating. Her pulse rate was 120 per minute and did not subside with rest. Her systolic blood pressure was 140 mm. of mercury. At the back of her glass eye was a rounded pad of yellow fat. Roentgenograms revealed slight constriction of the trachea at the level of the fifth and sixth cervical vertebrae.

The patient was admitted to the hospital and a bilateral adenomatous goiter was removed, each lobe being about half as big as an orange. Before the removal each recurrent laryngeal nerve was inspected and its position noted; a small butterfly of gland was allowed to remain on each side in the usual way. A small drainage tube was inserted and Michel clamps were used for the skin.

In the postoperative period some serum formed and was replaced by penicillin solution, 1,000 units per milliliter. The serum then cleared up without discharge of any of the silk ties employed. Four or five days after the operation it was apparent that the patient's glass eye was sinking. Within a few weeks of operation it was considerably sunken. She now has to get a new glass eye, not because of its falling out, but because it has sunk in. The pad of fat at the back of the eye is now much smaller.

* An unusual first symptom of goitre. M. J. Australia May 17, 1947, pp. 618-619.

Medical Forum

Discussion of articles published in MODERN MEDICINE *is always welcome. Address all communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 2, Minn.*

Hyperglycemia in Diabetes*

Applies to Young Diabetics

TO THE EDITORS: I completely subscribe to Dr. Henry T. Ricketts' statements that younger patients who are continuously kept free from glycosuria are the ones who escape nutritional and degenerative complications. However, in the older mild diabetic who has only occasional traces of sugar in the urine, I do not believe we have any proof that hyperglycemia without glycosuria is harmful.

BYRON D. BOWEN, M.D.
Buffalo, N.Y.

Why Tolerate Deviation?

TO THE EDITORS: There are many clinicians today who maintain that the height of the blood sugar or the intensity of glycosuria may be disregarded in treating diabetics as long as the patients are clinically well. I am in agreement with the comments expressed by Dr. Ricketts in his paper on hyperglycemia. There is sufficient evidence today to indicate that experimentally induced high blood sugar is attended by deleterious effects that, translated in terms of human diabetes, might prove equally damaging.

The situation is similarly true with persistent glycosuria in diabetics. Tolstoi, for example, has been content to permit his severe diabetics to excrete unlimited quantities of sugar and disregards the height of the blood sugar as long as his patients receive large quantities of carbohydrate and insulin, feel generally "well," and are maintained in a positive nitrogen balance. Clinical experience has taught, however, that severe pruritus vulvae with secondary vulval infections is not an infrequent accompaniment of persistent glycosuria.

The whole problem really resolves itself into this: If a patient can be so controlled as to keep him nutritionally well and free from hypoglycemic attacks, his fasting blood sugar close to the normal range, and his urine free or almost free of sugar, why tolerate any deviation from this standard?

Herein lies the application of the art of medicine to a highly scientific branch of medical practice. I feel that the aim in treatment should be to provide the diabetic with a diet containing all the nutritional components necessary to meet with his physiologic needs and to give him enough insulin to help him utilize all the administer-

* The article under discussion appeared on page 33 of the August 15 issue of MODERN MEDICINE.

ed carbohydrate. In order to keep him aglycosuric and his fasting blood sugar normal, it is necessary not only to quantitate both the carbohydrate and the insulin but to time both, dependent upon the pharmacodynamic action of the particular insulin employed. It can be accomplished in every diabetic, no matter how severe.

WILLIAM S. COLLENS, M.D.
Brooklyn, N.Y.

Exceptions to the Rule

TO THE EDITORS: I think most students of diabetes will agree with Dr. Ricketts' presentation on hyperglycemia in diabetes. Any regime that not only maintains a diabetic in good health and permits normal activity and nutritional status but also insures a normal blood sugar must be accepted as satisfactory.

To translate this ideal into practice is not easy. Almost any diabetic can learn to test his own urine. Since the majority have a normal renal threshold for sugar, the patient who tests his own urine and finds it free from sugar should have the mental satisfaction of knowing that the diabetes is under control.

The blood sugar can be checked at intervals to make sure that the renal threshold has not changed, but emphasis for the day-to-day regulation of diabetes is placed upon the freedom from either insulin reaction or glycosuria. Most patients so managed will attain the standards of successful management set out by Dr. Ricketts.

A few exceptions to this rule are worthy of mention:

1] Patients with varying degrees of hyperthyroidism have very labile blood sugar; even after operation and return to normal of the basal metabolic rate, the lability of the blood sugar may persist. These patients are particularly prone to insulin reactions, and as a practical point it may be exceedingly difficult to prevent occasional glycosuria or hyperglycemia without causing frequent and disturbing insulin reactions. In such patients a less rigid control and the use of a modified Tolstoi regime may be desirable.

2] A few patients cannot or will not follow a rigid diet. The very ignorant, the gluttonous, and the feebleminded may be very difficult to control. For this group of patients again a Tolstoi regime may be indicated.

3] Some older diabetics have an elevated renal threshold for glucose and the urine may be sugar free in the presence of a considerable elevation of the blood sugar. The Joslin school argues that hyperglycemia is to be avoided for this group of patients, even though frequent determinations of the blood sugar are thus made necessary.

I follow Mosenthal in believing that many diabetics get much self-assurance from testing the urine and finding it sugar free. Such patients often make tests several times daily. To tell such a patient that the renal threshold is so elevated that urinalysis is a fallacious guide to the management of the disease causes a great deal of mental distress, for it is obviously impractical to make repeated daily estimations of the blood sugar. In such cases I try to give enough insulin to control the hyperglycemia, but ignore the latter in talking to the patient.

CARL H. GREENE, M.D.
New York City

Diagnostix

Here are diagnostic challenges presented as they confront the consultant from the first clue to the pathologic report. Diagnosis from the Clue requires unusual acumen and luck; from Part II, perspicacity; from Part III, discernment.

Case MM-101

THE CLUE

DOCTOR: Doctor, I have asked you to see this thirty-year-old man because twenty-four hours ago he became dizzy and noted weakness of the left leg and arm and numbness of the right side of the face. *(The patient is sitting up in bed, not acutely ill, weighs about 180 lbs.)*

PART II

CONSULTANT: I cannot make up my mind without more information. Tell me about his past history and details of the present episode. Was the dizziness true vertigo? Did he have visual disturbances?

DOCTOR: Oh yes, he had severe diplopia for three hours at the onset, and he said his vision was so bad he couldn't read the newspaper. He was unable to walk because of a tendency to fall to the right and movements of his right hand were incoordinated. He was in excellent health before the present episode except for hypertension of 150/95 to 180/100 for two years. He had no headache or stiff neck. The dizziness was not true vertigo. The attack increased over a four-hour period and has gradually subsided. Do you wish to question him?

CONSULTANT: Yes. Did you have difficulty swallowing?

PATIENT: I choked on water and it came up into my nose. I still choke a little when I swallow. The main thing that bothers me now is that I cannot walk. And I can't use my right hand; it wobbles.

CONSULTANT: What did you find by the neurologic examination?

DOCTOR: There is disturbance of pain, temperature, and touch sensation on the right side of the face indicating interruption of the descending fifth nerve. The right cornea is insensitive, the palate deviated to the left. There is bilateral nystagmus on looking to the left or right and incoordination of the cerebellar type when attempting to touch the nose with the right forefinger. Adiadokocinesis can likewise be demonstrated on the right but not on the left. The remainder of the neurologic examination was normal. His B.P. was 190/100. He had moderate difficulty walking, tending to go to the right.

PART III

CONSULTANT: What did the laboratory work show in regard to hemoglobin, leukocyte count, urine, and serologic tests for syphilis? I presume you have examined the spinal fluid.

DOCTOR: The tests you ask for were

all normal except for a moderate leukopenia of 4,000. The cerebrospinal fluid had no globulin, total protein of 25. The gold colloid curve was flat at zero, and pressure was normal. The Kolmer reaction was negative. Roentgenograms of chest and head revealed nothing abnormal.

CONSULTANT: What was the opinion of the physician who saw him?

DOCTOR: Your question is too pointed. Nevertheless, since the admitting physician was mistaken, I will read you his note: "This man presents the picture of descending fifth nerve interruption. The lesion must be in the brain stem. The patient is very upset and emotional, which may account for many of his symptoms. In view of the known hypertension, he probably has a hemorrhage in the pons."

CONSULTANT: You have misled me. Do you know the answer?

PART IV

DOCTOR: I believe I do. *(Leading the consultant out of the room.)* Just last week we had a similar case which was examined post mortem. We found lesions such as we prophesied and as I believe would be found also in this case. The admitting physician would not have attributed any of this man's complaints to nervousness if he had been familiar with the syndrome. In the first place, the man is in much too good a condition to postulate pontine hemorrhage on the basis of hypertension. In any "stroke" beginning with dizziness, one should think of thrombosis of the posterior inferior cerebellar artery, which leads to infarction of the lobe of the cerebellum and adjacent portion of the pons. Moreover, dysphagia, homolateral cerebellar signs of diminished pain and temperature sense on the same side, and evidence of involvement of other cranial nerves in the pons complete the picture. Many other symptoms could occur, such as Horner's syndrome and impairment of pain and temperature sensations on the opposite side of the body. Emotional instability often occurs as a result of these lesions. The classical symptoms are [1] stroke and dizziness, [2] dysphagia, [3] loss of pain and temperature sensation in the face on the same side as the lesion and loss of similar modalities on the contralateral side of the body, and [4] homolateral cerebellar signs.

CONSULTANT: That's a tough one to try on me.

DOCTOR: Neither the intern nor the resident had ever heard of it before last night.

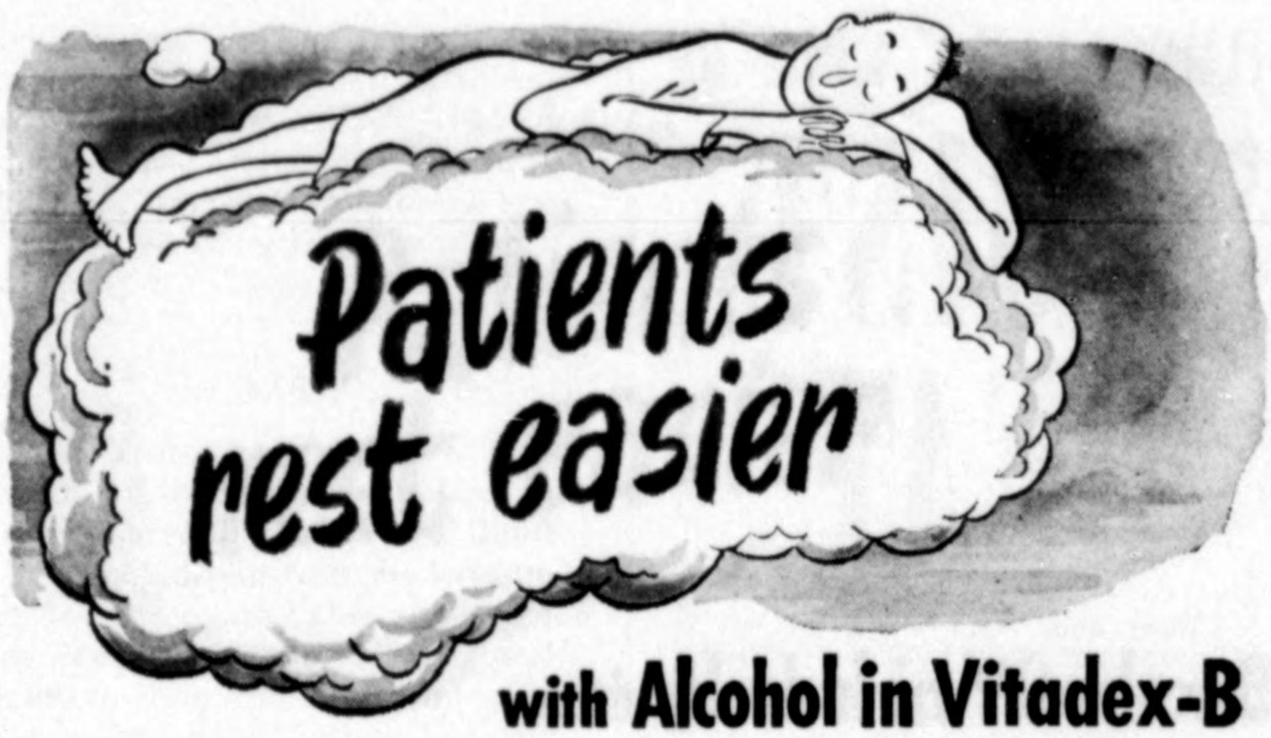
Case MM-102

THE CLUE

DOCTOR: Please come into this patient's room with me. I have an urgent problem. *(They enter a double hospital room. In the bed farthest from the door is a woman, about thirty-five years old, appearing physically robust but obviously suffering excruciating pain. She is holding her head between her hands and crying.)*

CONSULTANT: What, briefly, is the pertinent history?

DOCTOR: Mrs. B has long been a patient of mine. She has had no seri-



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*Behan, R.J., Am. Jour. Surg., 69:227-229, Aug., 1945
Moore, D. C. and Karp, M., Surg. Gyn. Obst., 80:523-525, May, 1945
Craddock, F. H., Jr., Craddock, F. H., Sr., Mr. of Med. Assoc. of Alabama, Nov., 1942

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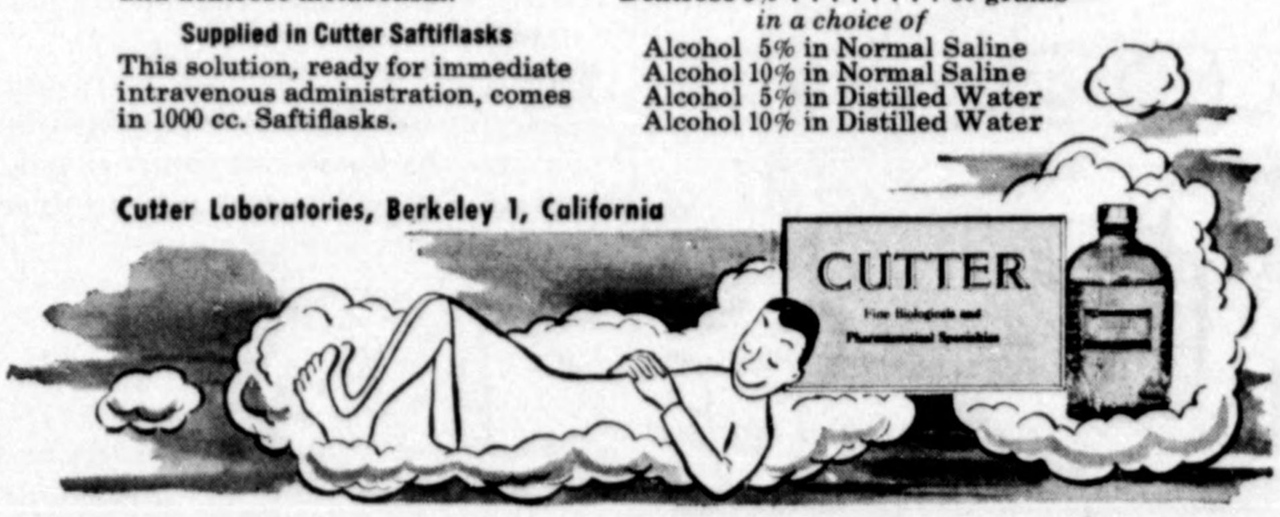


ous illnesses and was in excellent health until one hour ago when she coughed and had a mild headache. It has become rapidly worse so that it is now almost unbearable, despite a grain of codeine by hypodermic fifteen minutes ago.

PART II

CONSULTANT: Has she vomited? Where is the headache located? Have the fundi been examined? What are the unusual physical findings?

DOCTOR: Because of the severity of the headache I was called when she came in. The fundi were normal. She had vomited three times, but not in a projectile manner. The headache was diffuse but is now centered at the vertex and behind both eyes. Hurried neurologic and physical examinations were of little help. Blood pressure was 148/76, pulse 80; heart and lungs seem normal. Do you care to examine her?

CONSULTANT: She seems in great distress. I would like to see if she has rigidity of the neck or skin rash. *(Examination reveals no rash but severe rigidity of the neck.)*

DOCTOR: The films of the chest and head are in the hall. Will you step out, please?

CONSULTANT: Yes. *(Holding the films, still wet.)* These appear normal. Have you made blood studies?

DOCTOR: The hemoglobin is 12 gm., the erythrocyte count is 4 million, and white blood cell count 10,000.

CONSULTANT: Does the patient have any other complaints?

DOCTOR: No.

PART III

CONSULTANT: With no localizing neurologic signs and no antecedent,

recurrent headaches, I believe we should do a diagnostic spinal puncture at once.

DOCTOR: The intern has just stepped in to do that.

PART IV

INTERN: The fluid is grossly bloody. There seems no question but that this is a subarachnoid hemorrhage.

DOCTOR: Probably coming from a ruptured aneurysm at the bifurcation in one of the vessels of the circle of Willis.

Case MM-103

THE CLUE

DOCTOR: We seem to be seeing a lot of headaches these days. Doctor, this is Mr. Brown. He was perfectly well until one month ago. *(Mr. Brown, a middle-aged man, is sitting upright on the side of his hospital bed, holding his left temporoparietal area, in obvious distress. He coughs once and this aggravates the anguish. There is an emesis basin at the side of the bed.)*

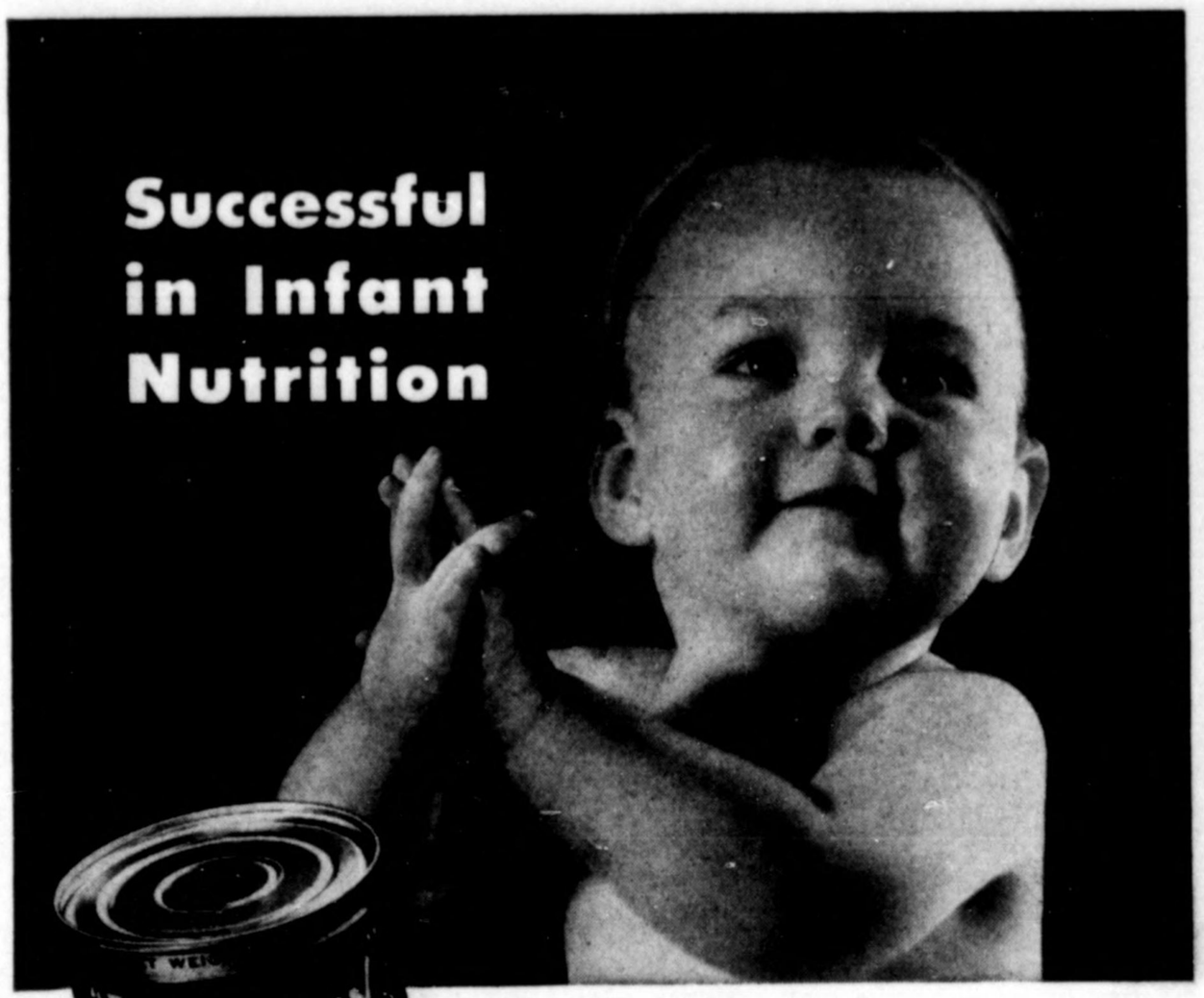
CONSULTANT: May I feel his pulse?

DOCTOR: Of course.

CONSULTANT: 50.

PART II

CONSULTANT: Give me some details. Is the headache always located in the same area? Has he vomited? How long do the headaches last; does medication give relief? Do they awaken him?



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DOCTOR: The headaches began, as I said, one month ago. They occur at any time of the day or night and are of sufficient intensity to awaken him. They are always located in the same place. The headaches last thirty minutes to four hours and are relieved slightly by codeine. They are becoming more severe. He has had no other symptoms except anorexia for one week. He has also had several severe headaches lasting only a minute or two.

PART III

CONSULTANT: What did the examination reveal? Was there papilledema? Are there any localizing signs, and what is his blood pressure?

DOCTOR: The blood pressure is 120/68. The physical examination revealed nothing abnormal. The temperature is normal and when he is not having a headache the pulse is normal. Urine, hemoglobin, and white blood cells are normal, and serologic reactions for syphilis are negative. Sedimentation rate was 6 yesterday. The cerebrospinal fluid was not abnormal. Neurologically there is a small but definite element of nystagmus on lateral gaze. There is some incoordination in the use of the right arm, but no muscle weakness or altered sensation.

PART IV

CONSULTANT: Is an operation scheduled?

DOCTOR: Do you think more informa-

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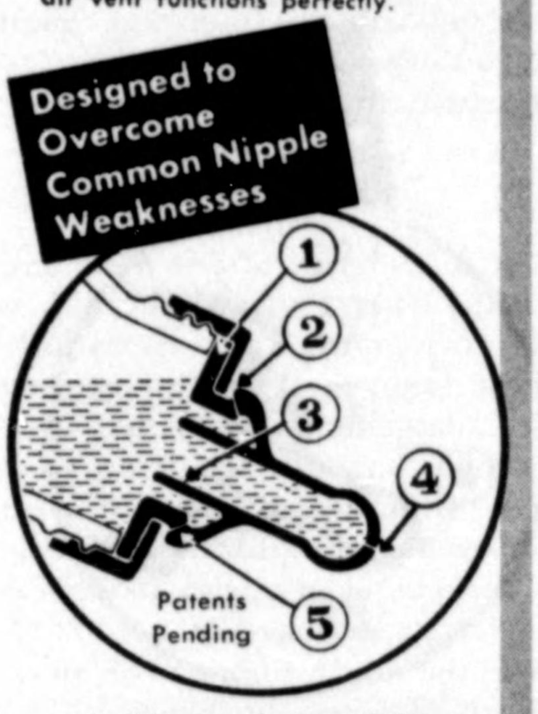

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tion is needed before contemplating surgery?

CONSULTANT: I believe there is a cranial lesion. The headaches of short duration suggest intermittent ventricular obstruction. . . .

DOCTOR: You are getting ahead of me. Do you want other examinations?

CONSULTANT: Yes, the electroencephalogram.

DOCTOR: That study revealed a definite left frontal delta.

PART V

DOCTOR: Dr. Smith is going to perform a craniotomy this morning. Shall we go to the operating room?

CONSULTANT: By all means.

PART VI

DR. SMITH: *(Interval of one hour and a half.)* After I turned the flap it was obvious from the appearance of the brain that we were dealing with a large tumor in the left frontal lobe. You can see it occupies most of the frontal lobe. This is a glioblastoma multiforme according to the pathologist who looked at the frozen section. We cannot remove the entire tumor. The prognosis is, of course, hopeless.

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Shortage of Trained Scientists Acute

Cancer and Mental Health programs impeded

WASHINGTON, D. C.—The report of the President's Scientific Research Board, primarily the work of the board's chairman, Dr. John R. Steelman, highlights this country's tragic shortage of trained scientific personnel. Despite repeated warnings from educators, scientists, and even some military leaders, this is the first time the situation has been brought home with force, as a national problem.

Dr. Steelman's report is a lucidly worded study of what we have and what we need in the way of scientific equipment, scientific personnel, and the funds for scientific research. The following points are made:

1] The United States is lagging scientifically, especially in basic research.

2] Although this year's budget for private and governmental research is higher than before the war, most of the money is going into military work and development, rather than pure exploration of the unknown. In the long run, this imbalance will be harmful.

3] The shortage of trained manpower continues. Between 1940 and 1947 the national research and development budget increased 335% but the supply of trained manpower increased only 35%.

4] The strength of this country—militarily and industrially—lies in the realm of ideas as well as in its great productive capacity. "In war the laboratory became the first line of defense and the scientist the indispensable warrior," says Dr. Steelman.

Dollars and jobs are now waiting trained workers in cancer research and mental health. All programs are impeded by lack of properly trained personnel.

CONGRESSIONAL GRANTS

Congress has appropriated $14,000,000 for the support of cancer research. One of the biggest slices of this—a million and a half dollars—has been set aside for grants designed to improve the teaching of cancer specialists and research workers. This is the first time that such grants have been made.

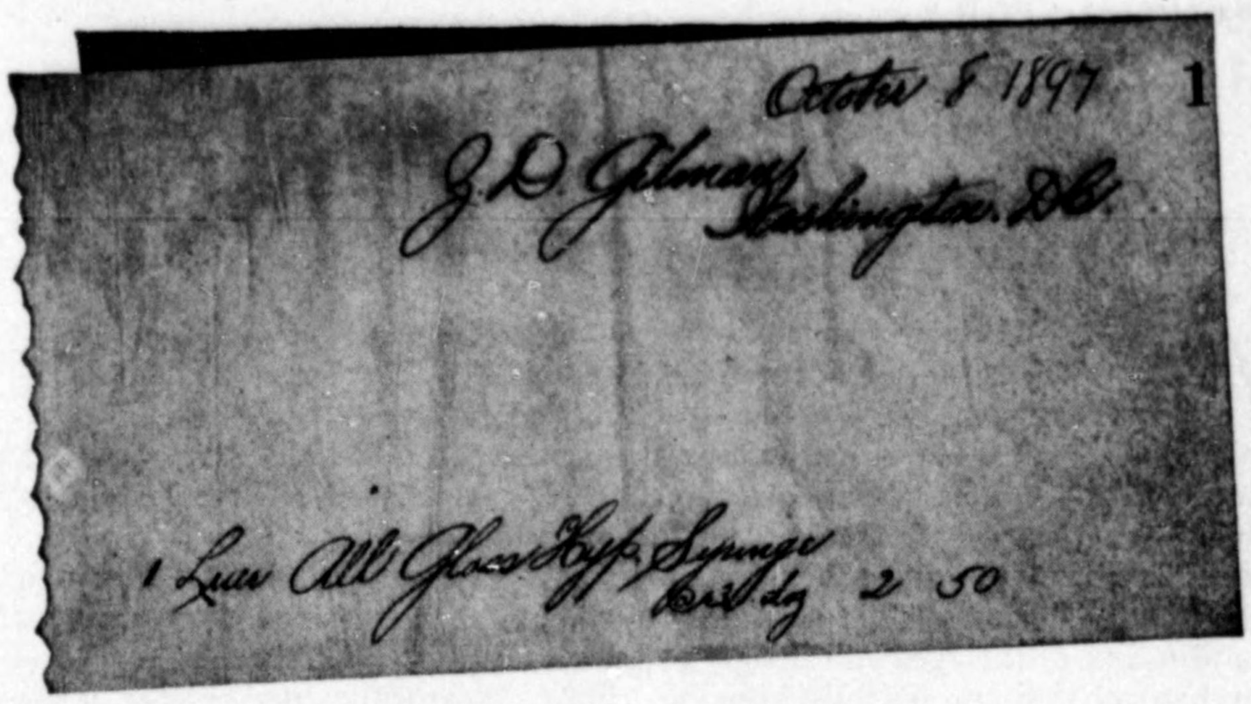
The Cancer Institute is allotting money to colleges and is appointing a cancer consultant for each of the nine Public Health districts.

About $1,500,000 is available for mental hygiene.

Some thirty states have submitted programs, but not all will be approved because the states can't show that they have the necessary qualified personnel. Most of them are enlarging their out-patient facilities, and U.S. Public Health Service is increasing its own training program.

GI MEDICAL TRAINING

As the college year opened, 1,529 veterans of World War II were enrolled for medical training, 799 for optometry, 1,321 for social service work, and 5,479 for training as curators and scientists.



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Electrical Measurement of Pain

Congress of Physical Medicine hears reports on advances in rehabilitation methods

An electrically operated meter capable of registering in measurable units a patient's tolerance toward pain was described at the twenty-fifth annual convention of the American Congress of Physical Medicine, held in Minneapolis.

Reports on advances in physical rehabilitation of the aged and design of mechanical aids for rehabilitation of paralytics and for measuring muscle endurance were other highlights of the meeting, attended by more than 500 members of the congress.

Development of the pain meter was reported by Dr. Donald L. Rose, director of physical medicine, University of Kansas, and Dr. Sedgwick Mead, Massachusetts General Hospital, Boston.

The machine directs a measured electric current into the patient's body, through hand, foot, or forehead. Meanwhile, the voltage is increased steadily and slowly.

Invariably, the patient withdraws when the current reaches an intolerable intensity. If the current is di-

rected through a finger, for example, the patient will lift the finger from a contact button at the exact instant of maximum pain. This involuntary act breaks the circuit. The meter reading as of that instant registers the increase in voltage, total elapsed time, and other factors.

The co-designers, who worked jointly as Baruch fellows at Harvard Medical School, said that the machine will provide a standard index to determine the pain threshold exactly.

An improved ergograph for measuring the work capacity of muscles in the arm, wrist, and finger was presented by Dr. Frances A. Hellebrandt and Miss Helen V. Skowlund of the Medical College of Virginia and Leslie E. A. Kelso of the University of Wisconsin, Madison.

Modification of the grip device for the ergograph has been found helpful, they said, in estimating differences in coordination of injured muscle groups and in determining disability for compensation. The patient operates a wheel with a hand crank to lift various weights. The cumulative height of successive lifts is indicated by a pen moving across a slowly revolving drum.

"The ergograph proves that a sense of fatigue is a false index of the working capacity of a muscle," the report said. "Persistence of effort has no detrimental effect on the tissue even after fatigue has become painful."

Dr. Milton G. Schmitt of the Chicago Clinic of Physical Medicine exhibited a "walker" designed to hasten rehabilitation of paralysis victims. Suspender-like rings and braces moving on an overhead track are adjusted to the patient and may be altered as muscular capacity improves. The walker keeps the patient in a normal upright position.

Medical Research Is Largest User of Isotopes

United States to share radium-like tracers with foreign laboratories in step toward international cooperation in field of science

PLANS for a world organization to consolidate research and avoid duplication of effort were initiated upon the heels of President Truman's announcement that the United States would make limited quantities of radioactive isotopes available to other nations.

Under the proposal, foreign governments would be required to permit qualified scientists of all nationalities to visit institutions where the materials would be used. Free exchange of information with respect to the purposes, methods, and results of such use would also be assured.

Since the distribution of radioisotopes was begun in August 1946, more than 1,000 shipments have been made to American institutions, including 60 medical schools and hospitals, 50 colleges and universities, 35 industrial laboratories, and 20 nonprofit institutions other than educational.

Most of the investigation with the radioactive elements has been in the fields of medical therapy and physiology. Elements most widely used in medical studies have been iodine-131, phosphorus-32, and carbon-14.

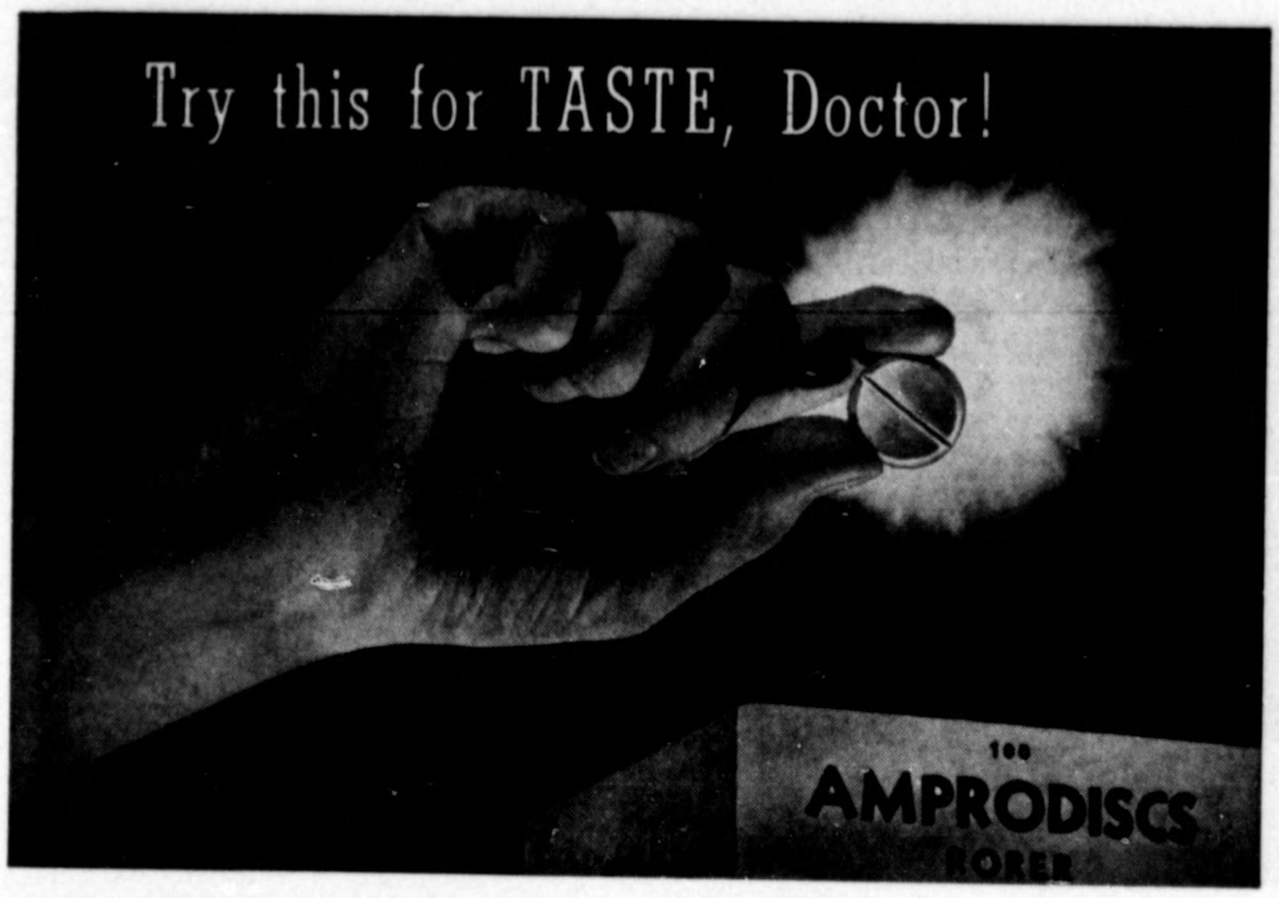
Nearly a third of the shipments, for instance, were of I^{131}, used chiefly in diagnosis and therapy. This isotope has been employed extensively in treatment of hyperthyroidism and thyroid cancers. It has also been used in attempts to ascertain the fundamental metabolism of the thyroid gland.

Polycythemia vera and other blood dyscrasias have been treated with P^{32}. Radioiron and radiosodium are being employed in water balance and blood flow studies.

A variety of problems, including those of bone and tooth formation, have been attacked by using radiocalcium and radiophosphorus. A number of workers are using carbon-14 in attempts to elucidate the mechanism of carbohydrate and protein metabolism. One laboratory has extensively tested the therapeutic value of colloidal radiogold in cases of lymphoid malignancy.

Tracer studies promise a vast extension of knowledge in many fields and their value to human welfare may far exceed that of the other applications of isotopes. Appreciation of the scope of the investigations can be gained from the following list of biologic materials that are being labeled and traced with isotopes: alcohols, amino acids, antigens, bacteria, bile acids, blood cells, carbohydrates, carcinogens, enzymes, fats, fatty acids, hormones, insulin, nucleic acids, penicillin, pharmaceutic agents, proteins, starches, sulfonamides, tissue fluids and salts, viruses, and vitamins.

Stocks of stable isotopes adequate for most uses are maintained by the Atomic Energy Commission. Many of the chemically separated isotopes are produced regularly. Other radioisotopes are separated in batches as demands arise. Radioactive materials



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furnished without processing are usually produced only after receipt of a purchase order. A week to several months is then required, according to the isotope desired.

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Storage of Blood

WHOLE blood can be preserved in acid citrate for at least twenty-one days with 70% of the erythrocytes remaining viable. Packed red cells from blood drawn into acid-citrate-dextrose may also be stored for twenty-one days and then transfused safely, either without diluent or with a slightly hypertonic saline added just before transfusion. Posttransfusion survival times of red blood cells in several preservative solutions under refrigeration were determined by Dr. John G. Gibson II and associates of Boston, using radioactive iron for tracers. Safe storage time for whole blood in De Gowin's, Alsever's, and McGill's solutions is fifteen days; for red cells drawn as whole blood into sodium citrate and resuspended in citrate-buffered citrate-dextrose solution, ten to fifteen days. Essentials for prolonged preservation of erythrocytes are refrigeration, addition of dextrose to the citrate anticoagulant, optimal dilution, and maintenance of a slightly acid reaction of the diluted plasma or resuspension fluid.

J. Clin. Investigation 26:704-738, 1947.

White Cell Clumping

In inflammatory processes white blood cells have a tendency to agglomerate in homogeneous cell groups. The phenomenon of agglomeration is termed leukergy by Drs. Ludwik Fleck and Zofia Murczynska of the University of Lublin, Poland. Demonstration in plasma of the factor causing leukergy is rarely possible, probably because the active principle is absorbed by circulating leukocytes or endothelial cells. During inflammation, leukocytes tend to adhere to the wall of the vein. Endothelial cells may also become adhesive. Diapedesis, migration, and perhaps even phagocytosis of leukocytes may be influenced by the increased stickiness. A serologic mechanism for leukergy may be assumed from the fact that cytospecific antisera may be produced for different types of leukocytes. If these cytospecific autoagglutinins act on bone marrow and other hemopoietic organs the blood picture may be altered for various pathologic conditions.

Texas Rep. Biol. & Med. 5:156-167, 1947.

Cancer Tests

Early detection of cancer may be possible upon perfection of two blood tests presented at the Fourth International Cancer Research Congress at St. Louis. One, employing color changes of brilliant cresyl blue and methylene blue in plasma, has been accurate in 585 of 681 cases. The other test. which depends upon fluorescence of serum exposed to ultraviolet light, has correctly detected experimental cancer in animals but has not yet been extensively used with human subjects.

The dye technic may prove to be as valuable a screening test for cancer as the chest x-rays are for tuberculosis. Dr. Maurice Black of New York Medical College puts into boiling water a test tube of patient's plasma with a dye added. If the patient has cancer the brilliant cresyl blue turns lavender within ten minutes and the plasma and dye form a clot. If the clot is grayish white the patient does not have cancer. Methylene blue is completely decolorized in less than ten minutes if the patient has cancer.

Under filtered ultraviolet light, normal blood serum is turbid and fluorescent. Blood from a cancerous subject fails to glow and is clear. Dr. Louis Herly of Columbia University, New York City, states that cancer produced by injection of carcinogens into animals cannot be seen for five days, but presence of cancer is revealed within twenty to forty-three hours by the ultraviolet test.

Dr. Joseph C. Amersbach, New York City, and Dr. Leo G. Nutini, Cincinnati, reported that complete regression of 33 of 48 skin cancers in human beings followed treatment with animal organ extracts. All but 2 of the other lesions were influenced favorably. Most of the cases were basal cell epitheliomas. Among the regressed cases 5 cancers recurred in or near the original site. More than 30 cases have been observed from two to four years.

Fat-free, deproteinized, water-soluble extracts of beef spleen and lamb liver were subcutaneously injected close to the cancer so that the entire area was thoroughly infiltrated. From six to thirty-eight injections were made; the difference in injections reflects variation in potency of extracts.

Prostatic Cancer Inhibitor

ETHYL carbamate, or urethane, is effective against prostatic cancer when the condition has become refractive to androgen and has spread. Dr. Charles Huggins and associates of the University of Chicago observed that tumors decreased in size, pain eased, sense of well-being improved, and acid phosphatase of the sera decreased in 4 patients given urethane. However, the death of 1 of the patients from hepatic necrosis after thirty-three 9-gm. daily doses was attributed to the medication. Ethyl carbamate is toxic and must be administered cautiously and the leukocyte count determined with frequency. The drug does not inhibit glycolysis.

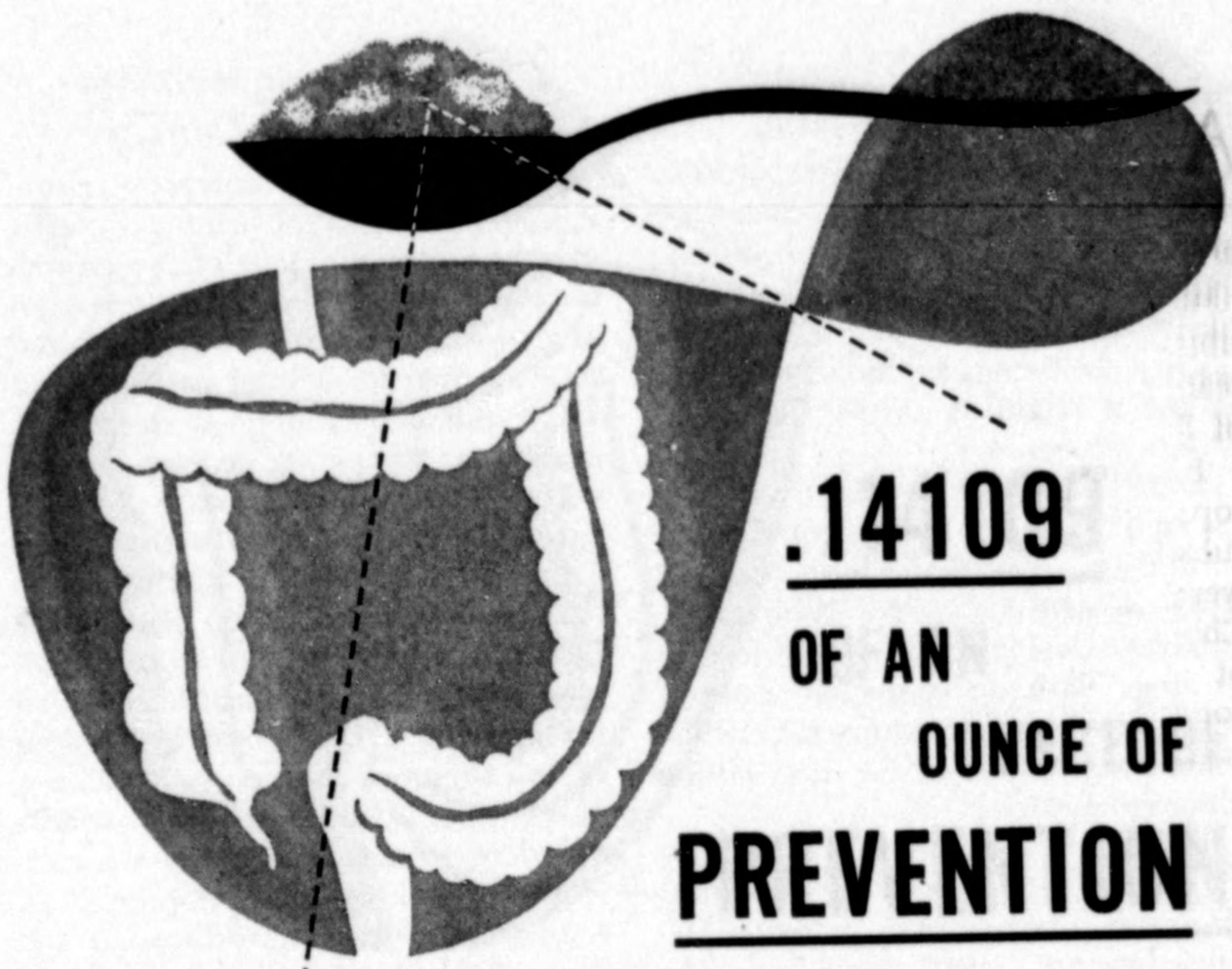
Science 106:147-148, 1947.

Estrogen for Cancer

MASSIVE doses of the female sex hormone give far greater relief to patients with prostatic cancer than the smaller amounts ordinarily prescribed. When ten to twenty times the usual doses are given in tablet form, Dr. Clyde L. Deming of Yale University, New Haven, Conn., finds that, in 80% of cases, the cancers are temporarily arrested and life is prolonged for at least two years.

New Antimalarials

TWO antimalarial chemicals have been obtained from a Chinese plant known botanically as *Dichroa febrifuga*. Dr. J. B. Koepfli and associates of the California Institute of Technology announce that the new compounds will be called febrifugine and isofebrifugine. One of the derivatives is believed to be one hundred times as powerful as quinine.



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Iodinated Compounds as Contrast Media

A CONTRAST medium more satisfactory for radiographic diagnosis than the conventional barium sulfate or iodized oil may be found in iodinated organic compounds. The possibility is being explored by three teams of scientists at the University of Rochester, N.Y.

Ethyl iodophenylundecylate, or pantopaque, is one of the most promising substances. Excellent bronchograms were obtained by Dr. William E. Chalecke and associates by injection of dogs with an aqueous emulsion containing 70% pantopaque, which coated and adhered to the canine mucosal surfaces.

Using a 50% emulsion, Dr. Murray P. George and associates visualized empyema cavities in 8 patients. Delineation was good. After injection the medium is self-distributing and the patient need not posture. In absence of pus, the pantopaque spreads to the walls of the cavity, making double contrast studies possible. The emulsion is removed by saline lavage.

Tetraiodophthalimidoethanol suspensions were used as media for gastrointestinal visualizations in 4 opaque enema and 56 oral examinations by Glenn E. Jones and associates. The new compound is more palatable than barium sulfate and apparently as safe to use. The iodinated suspension, in comparison to the barium suspension, does not settle out as readily, is not so gritty, delineates experimentally produced gastric lesions more completely and accurately, adheres to the bowel wall better, and does not inspissate and cause constipation so readily.

Radiology 49:131-151, 1947.

Calcium Related to Age, Growth, and Cancer

A CALCIUM-BINDING complex, probably a protein, of the cell cortex may be an integral part of the growth regulatory mechanism. With cessation of growth, the complex may be altered so as to increase cellular calcium. But when calcium binding is decreased, growth continues, age changes do not occur, and, in effect, the state of affairs exists that is associated with cancer. Calcium deficiency in cancer tissue may decrease adhesiveness of the cells, facilitate separation of one cancer cell from another, and, in part, be a reason for metastasis. Dr. Albert I. Lansing of Washington University, St. Louis, bases this hypothesis upon results noted in rotifers. When these microscopic water worms are immersed in a medium containing sodium citrate, the calcium-binding mechanism of body cells is altered. When increased, growth stops, when decreased, growth continues.

Science 106:187-188, 1947.

Ocular Prophylaxis

PENICILLIN, as effective for treatment of ophthalmia neonatorum as silver nitrate, has several advantages. Dr. H. Charles Franklin of the University of Tennessee, Memphis, finds that with penicillin permanent injury to the eye is impossible, instillation is painless, and inflammation is infrequent. The solution need not be fresh each day as deterioration does not produce noxious substances. Liberal amounts may be used. Furthermore, penicillin is effective for both prophylaxis and treatment.

J.A.M.A. 134:1230-1235, 1947.

Induced Resistance to Tuberculosis

THE course of tuberculosis may be altered favorably by thyroxin, even by doses likely to cause hyperthyroidism, if therapy is guided by determination of basal metabolism rates. Drs. R. A. Izzo and V. H. Cicardo, Buenos Aires, believe that immunity mechanisms and, consequently, resistance to tuberculosis are increased by the hyperstimulated glandular secretion. That persons with endemic goiter rarely have tuberculosis was first recognized nearly a century ago. Since then most investigators have acknowledged the influence of the thyroid gland on tuberculosis, but few have agreed that thyroxin increases resistance to the disease. At the Centro de investigaciones tisiológicas, Hospital turnú, susceptibility of guinea pigs to experimental tuberculosis was increased by thyroidectomy. Thyroid-deficient animals died of tuberculosis sooner than animals with normal thyroid glands. Likewise, animals with artificial hyperthyroidism provoked by thyroxin injections at the time of inoculation with tubercle bacilli lived longer than those not given thyroxin.

Am. Rev. Tuberc. 56:52-58, 1947.

Scientific Cornerstone

SEALED glass tubes containing scientific specimens for the edification of future biologists will be placed in the cornerstone of Notre Dame's new Laboratory for Germ-free Life. Included will be living organisms, viruses, vitamins, amino acids, penicillin, streptomycin, and collections of sand, clay, and rain and lake water. Also to be enclosed are examples of present activities of the laboratories, and recordings of the voices of scientists now at work in the university.

New Sedative-Hypnotic

SEDATION without undesirable after-effects may be achieved with a new pyridine compound, 3,3-diethyl-2,4-dioxotetrahydropyridine, called NU-903. Of 183 patients observed by Dr. S. Charles Freed of San Francisco, only 2 complained of slight drowsiness on awakening. None experienced excessive drowsiness, excitability, or skin reactions. Most effective somnifacient dosage is 0.4 gm. Satisfactory sedation for nervous tension is obtained usually by 0.1 or 0.2 gm. three times daily. Prolonged administration does not affect blood cells.

J. Lab. & Clin. Med. 32:895-900, 1947.

Plasma Process Averts Transfusion Syphilis

DANGER of transmitting syphilis by transfusion is apparently eliminated when frozen and dried human plasma is used instead of fresh whole blood. Treponemes are not adversely affected immediately by freezing alone and will maintain virulence if dehydration is incomplete. Dr. T. F. Probey of the National Institute of Health, Bethesda, Md., reports that *Treponema pallidum* becomes avirulent, however, if the saline-blood serum containing the suspended organisms is deep frozen and dried so that the processed plasma contains less than 1% moisture. Syphilitic infection failed to develop within one hundred and forty days in rabbits inoculated with material thus processed and restored. Results were also negative from three successive retransfers observed for thirteen, seven, and nine months.

Pub. Health Rep. 62:1199-1203, 1947.

Antihistamine May Prevent Penicillin Reactions

BENADRYL apparently controls urticaria and other allergic reactions caused by penicillin and antitoxin serum. Dr. Donald M. Pillsbury of the University of Pennsylvania, Philadelphia, and associates report that penicillin can sometimes be given to sensitive patients if the antihistamine is administered simultaneously.

J.A.M.A. 133:1255 1258, 1947.

Tumor Detection

FLUORESCENCE may be an aid in diagnosis of malignant tumors. Aspirated needle biopsies from tissue not more than a few millimeters below the surface turn vivid yellow under ultraviolet light when the patient is injected with sodium fluorescein three to eight hours before examination. Best results were obtained in examination of brain tumors, finds Dr. George E. Moore of the University of Minnesota Medical School, Minneapolis. Carcinomas of the colon, stomach, and breast are less apt to fluoresce. Areas of edema and cyst formation retain the dye for hours.

Science 106:130-131, 1947.

Undulant Fever Therapy

WHOLE blood containing fresh antibodies apparently increases the antibiotic action of sulfadiazine against undulant fever. Dr. I. Forest Huddleson of Michigan State College found that 4 patients given transfusions of whole blood followed by sulfadiazine were cured, although earlier trials of the drug alone for undulant fever had not succeeded.

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Army Disease Rates

ADMISSION of troops to Army hospitals for all causes during June 1947 fell considerably in comparison with the same month during the war years. The admission rate of 320 cases per 1,000 troops for the week ending July 4 was the lowest figure recorded in the twenty-three-year period for which data are available. The rate of admission was also down for overseas troops, although venereal infections and rheumatic fever were increasing.

Medical Corps Pay Raised

ARMY Medical and Dental Corps officers are receiving an extra $100 a month on a new salary scale which became effective September 1. The additional amount is offered as an equalization of Army with civilian medical and dental incomes.

Chicago University Research

NUCLEAR research, including studies in cancer control, will be carried out under a $12,000,000 project at the University of Chicago. Plans provide for a building for the small cyclotron, a new betatron and new large cyclotron, and housing for offices and laboratories of the Institute of Nuclear Studies, the Institute of Metals, and the Institute of Radiobiology and Biophysics.

VA Training in Tuberculosis

RESIDENT training in tuberculosis is now being offered to physicians at Veterans Administration hospitals at Brecksville, Ohio, Alexandria, La., Excelsior Springs, Mo., Oteen, N. C., and McKinney, Tex. Credit will be given at all the hospitals toward examinations of the American Board of Internal Medicine.

Simple Benign Peptic Ulcer

(Continued from page 40)

ulcer diet require magnesia in some form as a laxative. Milk of magnesia may be combined with the aluminum hydroxide gel. Aluminum phosphate, in suspension, has been recommended instead of aluminum hydroxide, particularly for the treatment of postoperative jejunal or stomal ulcers.

ANTISPASTICS AND SEDATIVES

An antispasmodic or a general sedative or both may be desirable. Belladonna or atropine, although of rather uncertain pharmacologic effect on gastric activity, either motor or secretory, is empirically satisfactory. Belladonna may be combined with any of the powder preparations as the extract, or given separately as atropine tablets, or as tincture of belladonna by drops. Other synthetic antispasmodics are available. As a general sedative, small amounts of phenobarbital (1/4 or 1/2 gr.) repeated three to four times daily, either alone or combined with one or other of the medicines in use, may be prescribed.

HEMORRHAGE

When an ulcer is bleeding, or has recently bled, the management is that of an acute ulcer, rest in bed, frequent small feedings, sedation, control of gastric acidity, suppression of motor activity by demerol, morphine, and atropine as indicated. In addition, transfusions of whole blood should be given to replace blood loss.

RETENTION AND OBSTRUCTION

When inflammatory edema and spasm interfere with motility, or block

the pyloric or duodenal canal, and cause retention, evacuation of gastric contents by aspiration done several hours after the last feeding at night prevents undue dilatation of the stomach and facilitates restoration of muscular tone. By carefully measuring the amount of material aspirated each night, progress, favorable or otherwise, may be estimated. This latter point is important for a determination of whether retention is organic or functional. If the amounts aspirated become progressively less, the assumption is warranted that edema and spasm are being reduced; if the amounts remain the same or increase, mechanical obstruction is present and surgical intervention will probably be necessary for relief. Some patients with obstruction do well for years with nightly gastric lavage.

An indwelling gastric tube introduced intranasally and clamped off at intervals may be used in patients with obstruction, for feeding, instillation of medication, and aspiration of retained contents.

Control of night secretion and acidity is important even in patients without retention. Many therapists insist that use of tobacco be prohibited. Alcoholic and caffeine drinks should be forbidden.

ANCILLARY THERAPY

The treatment of ulcer must be treatment of the individual. Many factors influence unfavorably the progress of a particular patient. Fatigue and exposure, infections, anxiety and fear, grief, mental shock, inability to eat proper food at regular intervals—all these things may interfere with healing of ulcers or be responsible for recurrence or exacerbation. In some cases a vacation, with no attention to diet or medication, may cure. Change

of eating habits, restoration of domestic tranquillity, solution of an emotional or financial problem, elimination of sources of recurrent infectious insults, protection against excessive fatigue—any of them may be more important than medical management or surgical treatment.

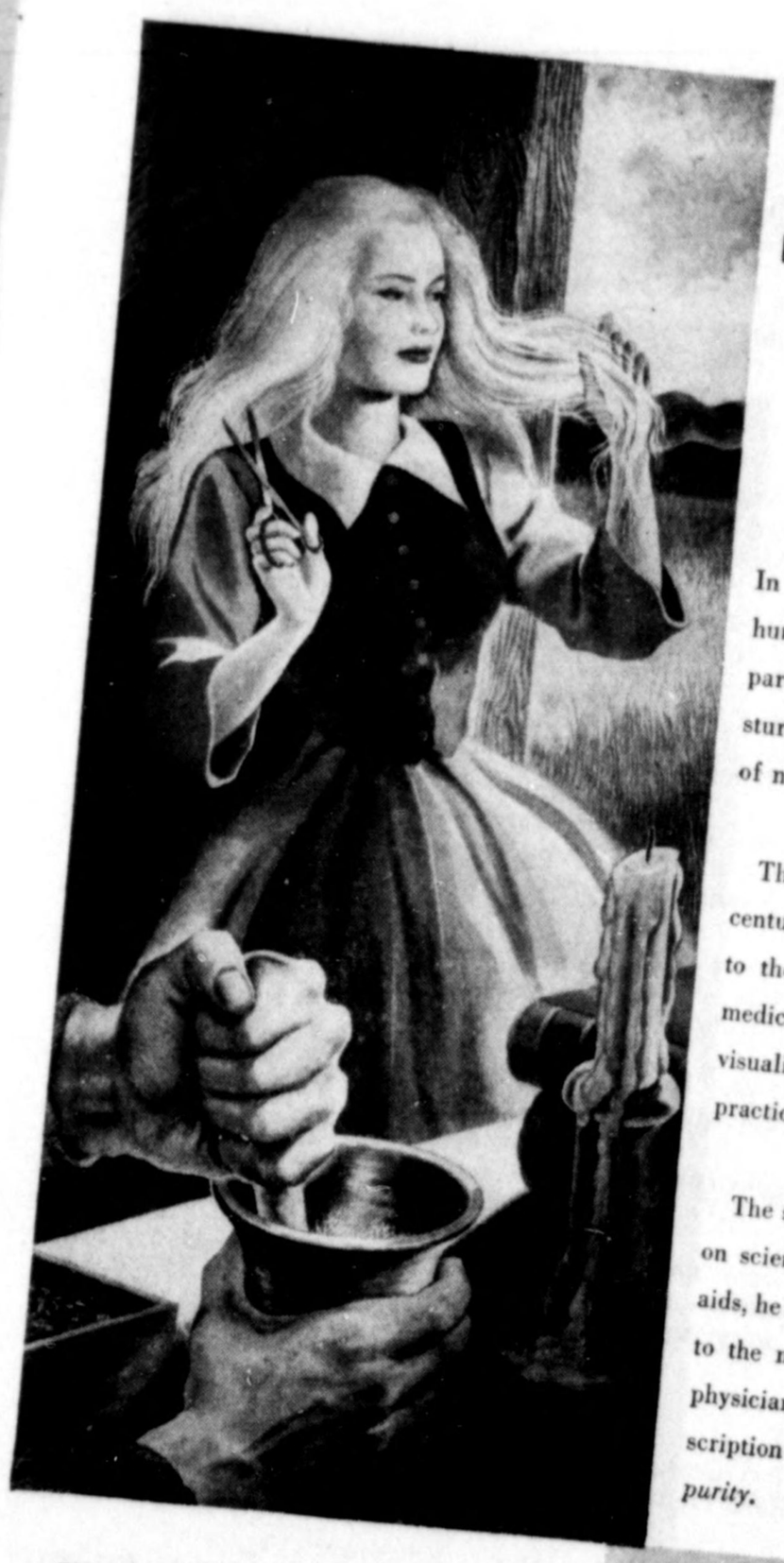
CAUSES FOR FAILURES

Medical treatment often fails because the patient cannot or will not cooperate. Medical programs carelessly planned and indifferently supervised by the attending physician are doomed to failure. Under these circumstances, the assumption of intractability is not valid and diversion to surgery not justified.

Ulcer is such a common ailment, afflicting so many people and causing so much disability, that any doctor attempting to administer therapy should carefully study the whole ulcer problem and the individual concerned, in order to apply the very best judgment in management. No other disease demands such close doctor-patient relationship.

An editorial in the *British Medical Journal* states that the medical profession has learned too slowly that neither the dramatic intervention of surgery nor the elaborate ritual of the alkaline diet can banish the constitutional tendency to peptic ulceration. To separate the ulcer patient from his diathesis is like severing the fisherman from his soul, and until some new secret of nature is revealed, the patient must be taught how best to live at peace with his ulcer—and to do this he must probably learn how to live at peace with himself.

See PROFESSIONAL SERVICE DEPARTMENT—*Page 124*



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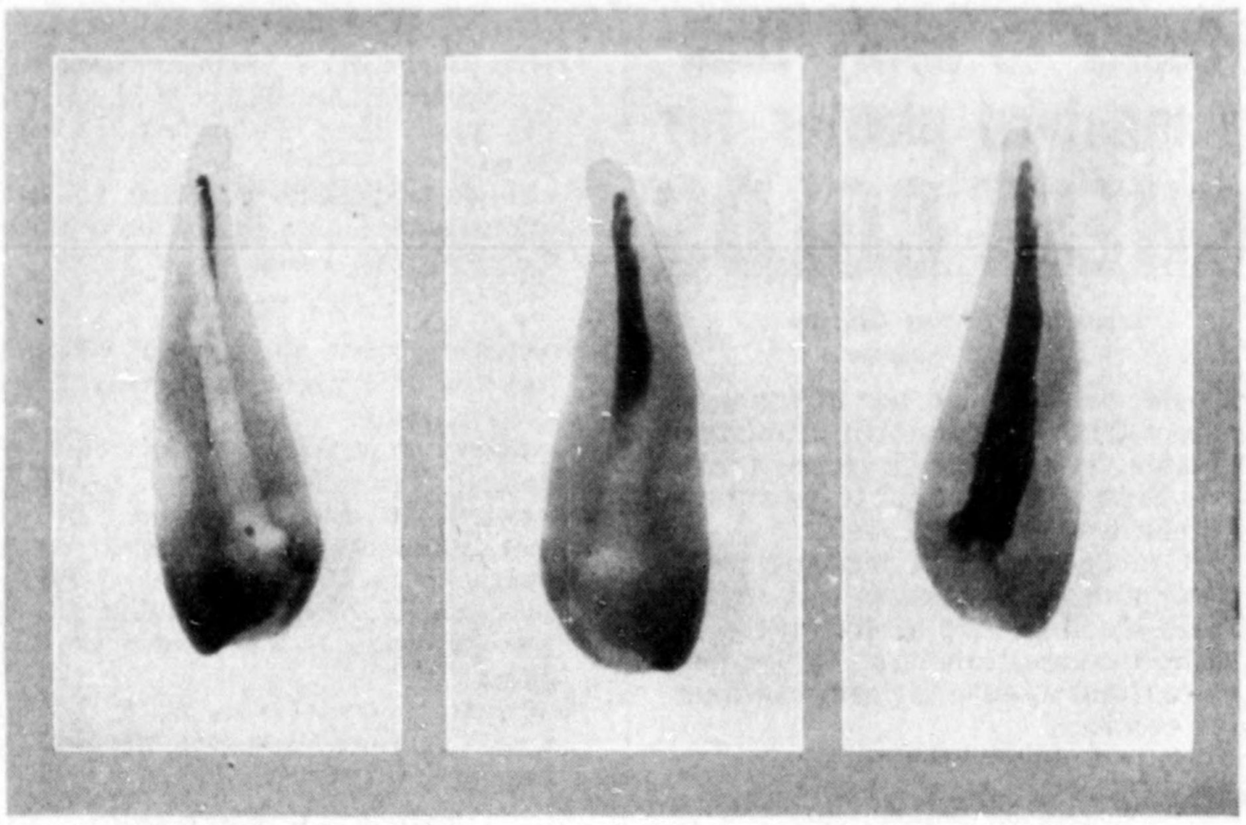

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(Continued on page 114)