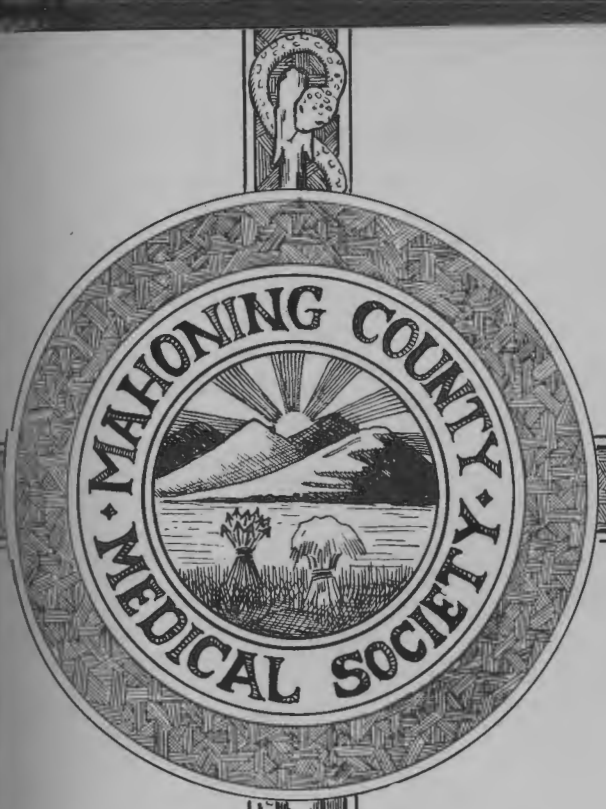

The resources of the scholar are proportioned to his confidence in the attributes of the intellect.
—Emerson

BULLETIN

of the MAHONING COUNTY MEDICAL SOCIETY

Vol. XVI No. 9
SEPT. 1946

FELLOWS

IONLEX

LIVER & IRON CAPSULES

LIVER CONCENTRATE 50:1
A primary extract of mammalian liver.

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All the factors of the B-Complex contained in the primary extract of mammalian liver.

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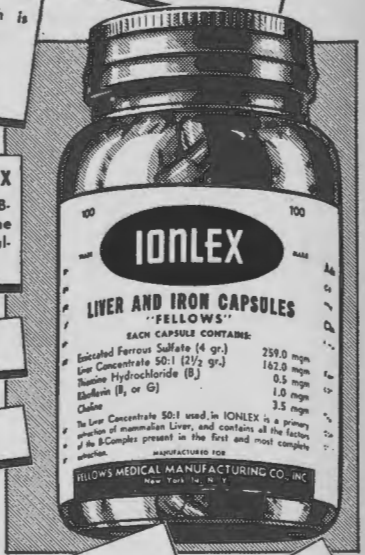

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FORMULA
Each capsule contains:

Exsiccated Ferrous Sulfate (4 grains)	259.0 mg.
Liver Concentrate 50:1 .	162.0 mg.
Thiamine Hydrochloride .	0.5 mg.
Riboflavin (B_2 or G) . .	1.0 mg.
Choline	3.5 mg.

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THE MAHONING COUNTY MEDICAL SOCIETY

Published monthly at Youngstown, Ohio — Annual Subscription, $2.00

Vol. XVI—No. 9 — September, 1946

CONTENTS

ADVERTISER'S LIST

PATRONIZE THEM — THEY MAKE THE BULLETIN POSSIBLE

• **PATRONIZE OUR ADVERTISERS AND MENTION THE BULLETIN** •

PRESIDENT'S PAGE

•

With vacation time drawing to a close, we will again resume our regular monthly meetings.

Our next meeting will be held on Tuesday, September 17th, and will be a business meeting.

The Ohio State Medical Association, at its Centennial Meeting at Columbus in May, raised the State dues from $7.00 to $15.00 annually. Our operating expenses have increased materially the past year and now with the increase in State Dues, we find it necessary to increase our dues to meet the rising demand.

It is the duty of every active member of the Society to be present and vote on this important question. It is your Society and if you want it to progress and hold its foremost position amongst the County Societies of Ohio, you will have to vote for the increase. I honestly believe every member is proud of our Society and will not want to relinquish its place in the sun and pass into oblivion.

EDWARD J. REILLY, M. D.
President

BULLETIN of the Mahoning County Medical Society
SEPTEMBER 1946

THE AUGUST MEETING

Altitude seemed to be the theme of the annual golf tourney and picnic of the Mahoning County Medical Society on Thursday, August 22, at the Youngstown Country Club. The scores were high, the price was high and so were some of the doctors. But high or low, the concensus was that it was a pretty good party. A good many came out in the afternoon for some relaxation at the "sport of gentlemen", but from the way the scores and fairways looked it was a good hard day's work crammed into one afternoon. Jim Nolan probably had many patients the next day. For some, wiser and less inclined to physical exertion, there was relaxation in the great game of African golf down in the 19th hole. No mention will be made here (for the benefit of the wives and peace in the home) of the money which changed hands at craps. Spirits which had ebbed on the course rose to great heights in the congenial atmosphere of the bar. About seven everyone rose and went up to the main lounge where a delicious roast beef dinner was served. This was topped off with tasty, home-made apple pie. While the pie-eating contest was being conducted, Jim Brown got up to hand out some prizes. Unfortunately, the theme of the party did not carry over into the prizes. The prizes were so small that this reporter was unable to see just what was given to those successful, although he did see both the donor and the recipient very well. J. K. Herald, Sam Goldcamp, and A. B. Wolf won the door prizes.

Then Jim handed the silver bowl to Bill Skipp to draw still a fourth lucky number and, by the strangest coincidence, it was Jim's own number. Everyone's eyebrows went high at that. But it was all in good, clean fun, so the judge (Jim Brown) decided the recipient (Jim Brown) could keep the prize. (The prize, incidently, was the biggest one given out all evening.)

Then the successful golfers were appeased with prizes. Dick Gross, Paul Harvey and S. R. Cafaro won respectively a rain jacket, golf balls and a sport shirt. After all the prizes had been given out everyone sat back to cigars and small talk. Soon from the left end of the lounge could be heard the strains of "Lift the steins to dear old Maine." The rafters way high up certainly did ring from then on. Art Shorten, the pathology resident from the South Side and the Beau Brummell of Youngstown, Walter Turner, seemed to be the song leaders. Soon they had gathered around them quite an assemblage and some of the old favorites good for harmony were heard.

Gradually things and people drifted back down stairs and soon there were bridge games, poker, and African golf again in full swing. Another table of singers appeared and kept everyone entertained with their harmony. A good bit of the time, however, they were either flat or sharp. It would take a well trained ear to tell exactly, but all the listeners there knew they were sour. George McKelvey and Albert Alcroft, the pro at Y. C. C., did sing "Just a Wee Dock and Doris" and it was in key and sounded very good, especially when they got in the "braw, bricht, moon-licht, nicht, to-nicht". By this time around in the back room the bets at the African golf were getting higher and higher. Two industrialists (laymen horning in on this select gathering of medical wisdom) got control of the dice and from then on it was bedlam. Doctors are just plain too poor to compete with big business. (Some stayed around the table, but these were all specialists.) It was getting late at this time and besides the writer had one more "coke" and things began to get hazy, so any further report from this quarter would not be accurate. Noteworthy comments on this "altitudinous affair" were the following: Elmer Wenaas—"I wuz robbed"; Dean Nesbitt—"I haven't heard those songs since I was in France 25 years ago"; an interne, as he had a second dinner (get it, Doc?)—"I'm sic——uh, whosh, erp, bo-o-ooo——ugh, sick."

DO YOU KNOW THE PHARMACISTS?

One of the physician's quietest and hardest-working allies is the pharmacist. He imprisons himself in his little store, receives an occasional, and too often patronizing, nod from the passing physician, and tries with unending patience to serve the foibles of a hundred citizens who cross his threshold every day. All he asks of the doctor is some token of recognition that pharmacy is an ancient, scholarly and honorable profession, that sometimes he be given a chance to practice that profession instead of being considered a mechanical transmitter of packaged merchandise and, also please, that prescriptions be written a little more legibly. He hopes you won't put him on the spot by asking him over the telephone to fill an oral narcotic prescription, and he asks that you respect his right to evaluate his own professional fees, as he respects yours. That really isn't asking too much. In return he is in a position to radiate neighborhood good-will towards your office, to procure somehow even the newest drug that the detail man has just extolled to suggest a pleasant and compatible vehicle for a seldom-used medication, and once in a while to correct those little clerical errors that we all sometimes make on a prescription blank. An occasional visit with the corner pharmacist is worth any doctor's while. So is a joint meeting between the medical and pharmaceutical societies. We are brethren in the healing art. And brothers should know each other better.

—*Jour. Med. Soc., N. J.*

Elms at Twilight

At twilight, elm trees seem to try
To spread their branches darkly green
O'er dying days, and as they lean,
To soothe and bless them as they die.

And this may be the reason why
The elm tree lovers are serene
At twilight.

For much as summer may supply
To those alert, with senses keen,
He loses most who has not seen
An elm against the western sky
At twilight.

—*Warren Deweese Coy.*

BUSINESS MEETING

Tuesday, September 17th, 8:30 P. M.

YOUNGSTOWN CLUB

By-Laws Now Read

CHAPTER 111, DUES—ASSESSMENTS, SECTION 1

"The dues of the different classes of membership shall be such as the Society from time to time shall decide, and which for the time being are established as follows: Active, $20.00 per year; Associate members (A) and (C), $20.00 per year; Associate (B), none for time for which dues have been paid to the Society to which the member last belonged; Interne members, while serving as internes, none; for the year following, if in practice, $5.00; Non-resident, $5.00 per year; and Honorary, none, except State dues."

The following amendment is proposed by Council:

CHAPTER 111, DUES—ASSESSMENTS, SECTION 1

"The dues of the different classes of membership shall be such as the Society from time to time shall decide, and which for the time being are established as follows: Active, $35.00 per year; Associate members (A) and (C), $35.00 per year; Associate (B), none for time for which dues have been paid to the Society to which the member last belonged; Interne members, while serving as internes, none; for the year following, if in practice, $5.00; Non-resident, $5.00 per year, and Honorary, none, except State dues."

After the business meeting, there will be shown an interesting film on

"HEMATOLOGY"

OCTOBER MEETING

Speaker:

RICHARD HAROLD FREYBERG, M. D.

New York City

NOVEMBER MEETING

Speaker:

ROBERT S. PALMER, M. D.

Boston, Massachusetts

Subject: "The Syndrone of Cerebral Circulatory Insufficiency in Arterial Hypertension with Particular Reference to Malignant Hypertension."

TREATMENT OF PAIN INVOLVING THE FACE AND ASSOCIATED REGIONS

By OSCAR A. TURNER, M. D.
226 North Phelps Street, Youngstown, Ohio

The practicing physician who has been confronted in the past with instances of facial pain has learned how persistent and difficult the problem of treatment may be, and at the same time has become aware of the gratitude of the patient and the feeling of satisfaction when he can be the instrument of relief.

The sensory innervation of the face and adjacent structures represents as complex an anatomical and physiological system as is present in any part of the body. Therefore, it is not surprising that the intricacies of the functioning system should give rise to symptoms any less complex than the anatomical and physiological arrangement of the pathways involved. It is difficult at times to separate with any degree of assurety pain of facial and pain of cephalic origin, and, indeed, in many instances any such division is purely arbitrary. In the following outline of diagnosis and treatment, however, consideration is given to pain which is limited essentially to the face and buccal structures. Etiology has not been discussed in any detail, partly because of the limitation of space and partly because the causative factors are often obscure. An attempt has been made to present a working basis for the diagnosis of facial pain and to indicate the possible methods of treatment.

FACIAL PAIN — DIAGNOSTIC OUTLINE

1. *Primary Trigeminal Neuralgia.*

   Paroxysmal, severe pain limited to the distribution of the V Cranial Nerve, most frequently associated with a "trigger point" and pain-free intervals between paroxysms.

2. *Secondary Trigeminal Neuralgia.*

   Pain limited to all or a portion of the V Cranial Nerve distribution; may be paroxysmal or relatively continuous or both and due to lesions in relationship to or directly affecting portions of the brain-stem, V nerve root, Gasserian ganglion, or V nerve branches.

   (a) Lesions of brain stem,—i.e. multiple sclerosis, thrombosis, hemorrhage, etc.

   (b) Neoplasms—in relation to the trigeminal system, centrally or peripherally.

   (c) Local infectious processes in relation to roots, ganglion or nerves,—i.e. suppurative, luetic, etc.—causing localized meningitis and/or arachnoiditis or interstitial (parenchymatous) neuritis.

   (d) Herpetic. (Lesion probably primary in V Nerve ganglion.)

3. *Glossopharyngeal Neuralgia.* (Tic doloureux of IX Cranial Nerve. (1).
Counterpart of trigeminal neuralgia in IX Cranial Nerve. Paroxysmal severe pain involving tonsil, posterior pharynx, posterior portion of tongue and middle ear, precipitated by swallowing, talking, or eating.

4. *Sphenopalatine Neuralgia.*
Poorly defined clinical syndrone consisting essentially of burning pain deep in the cheek, behind and below the eye, with radiation toward the vertex, occasionally into the occiput, neck and shoulder and frequently associated with lachrimation and flushing of the face and conjunctiva. The pain is usually persistent and frequently associated with tenderness of involved areas.

5. *Buccal Neuralgia.*
Superficial pain involving the buccal area, usually constant and only occasionally associated with a trigger-area in the naso-labial region. Pain is within the area supplied by the sympathetic fibers associated with the facial (external maxillary) artery, and may be sharp and severe, or dull and boring in character. Pain may involve lip, cheek, gum, tongue, nose, etc., and may be precipitated by talking, local pressure or cold. May be associated with hypersensitivity of the carotid, facial, or temporal artery.

6. *Geniculate Neuralgia.* (VII nerve neuralgia, tic doloureux of the nervus intermedius.)
   (a) *Paroxysmal Geniculate Neuralgia.*
   Paroxysmal pain in front of ear or along the anterior wall of the external auditory meatus. May be secondary to chronic ear disease or associated with painful muscular tic of the face. Rare.
   (b) *Chronic Neuralgia.*
   Intermittent or constant pain in region of ear, secondary to chronic ear disease.
   (c) *Herpetic Neuralgia.*
   Post-herpetic pain (Geniculate ganglion) which may involve the ear, tympanum, the posterior wall of the meatus, the site of the tongue and soft palate. Rare.

7. *Ciliary (Migrainous) Neuralgia.* (Harris) (3).
Boring, or severe, shooting pain located in or behind the eyeball. Probably due to vasomotor disturbances of the meningeal vessels.

8. *Atypical Neuralgia.* (4).
Severe, constant or throbbing pains, frequently ill-defined, often not conforming to anatomical distribution of nerves, and often due to acute or chronic infections of the teeth (dental neuralgia), sinuses, or eye-strain etc.

In the above outline only the major types of facial pain have been considered and attention has not been directed to those pains which are esentially cephalic in character but which may be reflected as pain involving the upper portions of the face—i.e. occipital neuralgia, auriculo-temporal neuralgia.

FACIAL PAIN—THERAPEUTIC OUTLINE

Cause of Pain	*Treatment*	
	Conservative	*Radical*
Major trigeminal neuralgia		
1st division	a. Alcohol injection—supraorbital and supratrochlear nerves. b. Avulsion of supraorbital and supratrochlear nerves.	Intracranial trigeminal tractotomy.
2nd - 3rd division	a. Alcohol injection or avulsion of peripheral nerves.** b. Alcohol injection of major nerve trunks.**	a. Intracranial section of trigeminal roots. b. Intracranial tractotomy.
Glossopharyngeal Neuralgia	Medical treatment—trichlorethylene. (Usually of little value.)	Intracranial section of glossopharyngeal nerve.
Sphenopalatine Neuralgia	Treatment of cause (sinusitis?). Cocainization of nasal mucus membranes.	Alcohol injection of sphenopalatine ganglion.
Buccal Neuralgia	Novocaine block of external maxillary artery and associated sympathetic fibers.	Resection of segment of artery and accompanying fibers.
Geniculate Neuralgia	Treatment of local condition.	Intracranial section of nervus intermedius.*
Ciliary (Migrainous) Neuralgia (Harris)	Medical treatment — histamine, Benadryl (?). Alcohol block — cervicodorsal sympathetic.	Avulsion of supraorbital and supratrochlear nerves. Alcohol block of 1st division V Nerve (?).

** Of no value if the pain involves the deeper structures. Of considerable use in controlling the "trigger points."

* Probably of no value in post-herpetic geniculate neuralgia.

(*Concluded on page* 297)

Cause of Pain	*Treatment*
Painful carcinoma limited to pharynx and posterior tongue.	Intracranial section of IX Cranial Nerve.
Painful carcinoma jaw, mouth and/or pharynx. With involvement of neck region.	Intracranial section of V and IX Cranial Nerves. Above, with section of superior cervical plexus.
Painful carcinoma of face, mouth, tongue and nasal sinuses—with pain in pharynx and cervical region.	Trigeminal tractotomy, combined with intracranial section of IX Cranial Nerve and, if necessary, with cervical rhizotomy.
Pain involving head and face, associated with body pain (somatic).	Mesencephalic tractotomy. (5)
Secondary trigeminal neuralgias, not relieved by local treatment.	Alcohol injection or avulsion of V nerve branches; alcohol injection of nerve trunks or possibly intracranial section of V nerve roots.

DISCUSSION

The rationale of treatment of severe or intractable pain of the face and associated structures is dependent upon (1) the elimination of the cause of the pain if possible, (2) the exact area involved, and (3) the identification of the sensory nerve supply to the painful area. If the underlying cause cannot be eradicated, treatment other than roentgen therapy where indicated, must be directed at the sensory nerve supply itself. Local injection of alcohol into the tissues of a painful site will rarely control the pain for any length of time and will often result in aggravation of the condition due to scar tissue formation.

While intercranial section of the cranial nerves would appear to be a formidable procedure for the control of pain, the operation can be carried out without great difficulty and with a relatively low mortality rate. The relief of pain obtained in carefully planned procedures is gratifying and in inoperable or recurrent malignancy of the face and neck the duration of useful life and comfortable existence can be materially extended. In most instances the procedure can be carried out under novocaine block anaesthesia where this is indicated by the condition of the patient.

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4. Glaser, Mark A.: Atypical neuralgia, so called. A critical analysis of one hundred and forty-three cases. Arch. Neurol. and Psychiat., 20: 537-558, 1928.
5. Walker, A. Earl: Mesencephalic tractotomy. A method for the relief of unilateral intractable pain. Arch. Surg., 44: 953-962, 1942.

SURGERY IN THE AGED

With the span of life ever increasing, the problem of geriatrics is an ever-enlarging one. As a result, surgery of the aged will have an increasing scope. Careful preoperative preparation, wise consideration in the choice of anaesthesia, gentleness in handling tissues, and well advised postoperative measures will diminish the the mortality in this group.

If operations are considered in the aged, preoperative knowledge of the patient's general condition becomes of greatest importance. It must be remembered that while a preoperative examination may show the various systems to be functioning efficiently, they are doing so with a low reserve and the unusual burden of an operation may break the balance. Every opportunity should be made before operation to ascertain the efficiency of the various systems.

More specifically, preoperative knowledge of the patient's blood chemistry, nutritional state, respiratory, and cardio-vasular renal reserve are of invaluable aid in the management of the aged. For instance, hypoproteinemia or avitaminosis, especially Vitamin C, are factors in wound disruption or delayed healing.

From the standpoint of the actual surgery, gentle handling of tissues is essential, since the tissues in the elderly patient are more tender and friable than in younger individuals. Choice of an anaesthetic which will not vary the blood pressure greatly is also of importance. Greater care must also be exercised in wound closure. Sutures should be left in place longer in elderly patients.

Postoperatively, the aged patient is subject to the same complications as the younger individual, but to a greater degree. Prolonged bed rest may add to the risk of the elderly patient and most patients do better if out of bed early. There is a growing accumulation of data showing that with early rising, wound healing is more rapid, there are fewer pulmonary complications and vascular accidents are markedly reduced. Blood chemistry studies inform of the need for replacing fluids, chlorides and proteins to the body.

If such protective measures are carefully applied, and if surgical management is modified according to their special requirements, the risk of surgery in the aged can be greatly minimized.

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ACADEMY OF PEDIATRICS SURVEY OF CHILD HEALTH SERVICES

During the early part of September each practicing physician of the State will be asked by the Ohio Study of Child Health Services to answer two fundamental questions on the basis of his personal medical experience and of his knowledge of the status of youth health facilities in his community.

These questions are: (1) To what degree do you, as a physician, carry the load of medical care of young patients in your community? (2) Have the health facilities in your community met your medical requirements in carrying out the medical care you wish to give your young patients?

A simple, one-page questionnaire bearing upon these two matters will reach every physician within a few weeks. Each one should be thinking about these questions in order that he may give the information which he considers most vital in this particular study. The success of this important study depends wholly upon the co-operation of every practicing physician in the State.

YOUNGSTOWN RECEIVING HOSPITAL

TUESDAY EVENING, SEPTEMBER 24th, 8:30

•

EPILEPSY — DIAGNOSIS and TREATMENT

OSCAR TURNER

•

These meetings are held on the last Tuesday of each month in the Auditorium of the hospital on Indianola Avenue.

PLAN TO ATTEND!

Trumbull County Medical Society

THURSDAY EVENING, SEPTEMBER 19th, 8:30

WARNER HOTEL — WARREN, OHIO

•

DR. JOSEPH C. DELOR

of Columbus, Ohio

•

SUBJECT—Clinical Diagnosis of Liver and Gall Bladder Diseases.

NEWS . . .

WANTED—Dr. J. Claire Vance has moved his offices to Poland, Ohio, and finds himself short of equipment. He would appreciate some kind soul helping him to locate an examining table, stool, dressing cabinet and instrument cabinet. A liberal reward has been offered by "Clair" to any member of the Society who comes to his rescue or if someone will only tip him off as to where he might make connections.

Dr. and Mrs. M. J. Berkson have returned from a two weeks' stay at Atlantic City.

Dr. and Mrs. J. P. Keogh and their two children have returned from a two weeks' vacation at Madison-on-the-Lake.

Dr. and Mrs. Louis Deitchman are spending some time with friends and relatives before going to California to make their future home.

Dr. and Mrs. S. R. Cafaro are spending a month with relatives and friends before returning to St. Augustine, Florida, where Dr. Cafaro is associated with the East Coast Clinic.

BIRTHS

Born to Dr. and Mrs. J. K. Herald a son August 18, at St. Elizabeth's Hospital.

Born to Dr. and Mrs. M. C. Raupple a daughter August 24, at St. Elizabeth's Hospital.

OUR NEW MEMBERS

O. A. Turner, M. D., Neurosurgery, 226 N. Phelps Street. Preliminary education at Ohio University, Athens, Ohio, medical education at Western Reserve University, Cleveland, Ohio.

C. E. Pichette, Jr., M. D., General Surgery, 704 Dollar Bank Bldg. Preliminary education at Syracuse University, Syracuse, N. Y.; medical education at Syracuse Medical School, Syracuse, N. Y.

P. B. Giber, M. D., General Medicine, 4 N. State Street, Girard, Ohio. Preliminary education at University of Michigan, Ann Arbor, Michigan; medical education at Wayne University, Detroit, Michigan.

F. G. Kravec, M. D., Chest Disease and Tuberculosis, 243 Lincoln Avenue. Preliminary education at Miami University, Oxford, Ohio; medical education at Loyola University School of Medicine, Chicago, Illinois.

S. W. Ondash, M. D., General Surgery, 2514 Mahoning Avenue. Preliminary education at St. Louis University, St. Louis, Mo.; medical education at St. Louis University School of Medicine, St. Louis, Missouri.

J. J. Sofranec, Jr., M. D., Orthopedic Surgery, 1007 City Trust & Savings Bank Bldg. Preliminary education at Ohio State University, Columbus, Ohio; medical education at Loyola University School of Medicine, Chicago, Illinois.

H. K. Giffin, M. D. Director of Laboratories, Youngstown Hospital Association. Preliminary education at Muskingum College, New Concord, Ohio, medical education at Western Reserve University, Cleveland, Ohio.

R. V. Clifford, M. D., General Surgery, 19 Lincoln Avenue. Preliminary education at Duquesne University, Pittsburgh, Pa.; medical education at Georgetown University, Washington, D. C.

U. A. Melarango, M. D., General Medicine, 804 Dollar Bank Bldg. Preliminary education at Western Reserve University, Cleveland, Ohio; medical education at Ohio State University, Columbus, Ohio.

James D. Miller, M. D., General Medicine, 603 Home Savings & Loan Bldg. Preliminary education at Ohio State University, Columbus, Ohio; medical education at University of Maryland, Baltimore, Md.

A. K. Phillips, M. D., General Surgery, 250 Lincoln Avenue. Preliminary education at Ohio University, Athens, Ohio; medical education at University of Cincinnati College of Medicine, Cincinnati, Ohio.

E. E. Elder, M. D., Psychiatry and Neuro-Psychiatry, Youngstown Receiving Hospital. Preliminary education at Sarospatak, Hungary; medical education at Budapest University, Hungary.

R. A. Olson, M. D., Neuro-Psychiatry, 2009 Hillman Street. Preliminary education at University of Buffalo, N. Y.; medical education at University of Buffalo, Buffalo, New York.

A Non-Systemic Antacid and Protective

IN peptic ulcer, Kamadrox affords rapid relief of epigastric discomfort and prompt objective improvement. It promotes healing of the ulcer crater because of the specific influence of its three ingredients (*Magnesium Trisilicate,* 50%; *Aluminum Hydroxide,* 25%; *Colloidal Kaolin,* 25%).

Kamadrox exerts prompt, profound, and sustained acid-combining power. Yet it is systemically inert so that it cannot lead to alkalosis or secondary acid-rise. By forming a coating over the ulcer crater, it provides mechanical as well as chemical protection. Kamadrox is astringent, demulcent, and adsorbent. Its ease of administration and pleasant taste are appreciated by the patient and assure his cooperation in carrying out the ulcer regimen.

KAMADROX

KAMADROX POWDER is supplied in 4-oz. and 1-lb. jars.

KAMADROX TABLETS are supplied in bottles of 100, 500, 1,000 and 5,000. Each tablet contains: *Magnesium Trisilicate,* 4 gr.; *Aluminum Hydroxide,* 2 gr.; *Colloidal Kaolin,* 2 gr.

KAMADROX LIQUID. Each fluidounce represents 64 gr. (4.15 Gm.) magnesium trisilicate and 32 gr. (2.1 Gm.) kaolin colloidal, suspended in 3½% aluminum hydroxide gel, aromatics, q.s.

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SEMCO

SHOULD VITAMIN D BE GIVEN ONLY TO INFANTS?

VITAMIN D has been so successful in preventing rickets during infancy that there has been little emphasis on continuing its use after the second year.

But now a careful histologic study has been made which reveals a startlingly high incidence of rickets in children 2 to 14 years old. Follis, Jackson, Eliot, and Park* report that postmortem examination of 230 children of this age group showed the total prevalence of rickets to be 46.5%.

Rachitic changes were present as late as the fourteenth year, and the incidence was higher among children dying from acute disease than in those dying of chronic disease.

The authors conclude, "We doubt if slight degrees of rickets, such as we found in many of our children, interfere with health and development, but our studies as a whole afford reason to prolong administration of vitamin D to the age limit of our study, the fourteenth year, and especially indicate the necessity to suspect and to take the necessary measures to guard against rickets in sick children."

*R. H. Follis, D. Jackson, M. M. Eliot, and E. A. Park: Prevalence of rickets in children between two and fourteen years of age, Am. J. Dis. Child. 66:1-11, July 1943.