heterogeneous syenite-granite magma split up into layers, but also differential movements of the layers, at least during late stages of magma solidification. This conception does not, however, preclude the possibility of some differentiation after portions of the magma came to rest, or even before the intrusion began. In fact it is reasonable to suppose that the commonly occurring large-scale, irregular, gradual transitions from granite and granite porphyry to syenite and even diorite may have resulted from differentiation of the syenite-granite magma before, or during an early stage of, the intrusive process.

Another explanation, supported by field evidence, to account for at least some cases of banded structure should be mentioned. Thus at a number of localities gray or greenish-gray basic syenite or even diorite bands occur in the syenite-granite series where dark Grenville gneiss or amphibolite inclusions are also common. Both igneous-looking bands and inclusions lie parallel to the foliation of the country rock. Sometimes the boundaries of the inclusions are very sharp, but in other cases they are not, and plainly more or less fusion of the inclusions has taken place. All stages from thoroughly fused and absorbed inclusions to others where little or no fusion has taken place may be seen. The thoroughly fused inclusions have a distinctly igneous appearance and their boundaries of course merge into the enclosing rock yielding a more or less well developed banded structure. Some typical cases of this kind of magmatic assimilation are described by the writer in a recent paper,[5] and still others in various New York State Museum bulletins by the writer. Of the large number of cases which have come under the writer's observation, nearly all are of very minor extent, and usually such banding is definitely recognizable as having resulted from assimilation rather than pure differentiation. There is no positive evidence that large bodies of the syenite or granite have been appreciably changed in composition due to the incorporation or assimilation of Grenville rocks. Thus, while it seems certain that assimilation has played a minor rôle in the production of banding of the syenite-granite series, the actual quantitative importance of assimilation as compared with differentiation is by no means definitely known.

WILLIAM J. MILLER

SMITH COLLEGE

[5] *Geol. Soc. Amer. Bull.*, Vol. 25, pp. 254–260.

PROCEEDINGS AND RESOLUTIONS OF THE THIRD RESUSCITATION COMMISSION[1]

THE Commission met in New York at the Rockefeller Institute on Friday, May 17, 1918. There were present at the meeting: Passed Assistant Surgeon E. F. DuBois, U. S. N. R. F., of the Bureau of Medicine and Surgery, Navy Department; Dr. D. L. Edsall, professor of medicine and dean, Harvard Medical School; Mr. W. C. L. Eglin, chairman of committee on safety rules and accident prevention of the N. E. L. A.; Dr. Yandell Henderson, professor of physiology, Yale University and consulting physiologist of the Bureau of Mines; Dr. Wm. H. Howell, professor of physiology and assistant director of the school of hygiene and public health, Johns Hopkins University, member of the National Academy of Sciences; Dr. Reid Hunt, professor of pharmacology, Harvard Medical School, Secretary of Commission; Professor A. E. Kennelly, professor of electrical engineering at Harvard University and the Massachusetts Institute of Technology; Dr. Charles A. Lauffer, medical director of the Westinghouse Electric Co., Pittsburgh, Pa.; Dr. S. J. Meltzer, Rockefeller Institute, chairman of the commission, member of the National Academy of Sciences; Dr. Joseph Schereschewsky, Assistant Surgeon General, U. S. Public Health Service; Dr. G. N. Stewart, professor of experimental medicine, Western Reserve University, Cleveland; Professor Elihu Thomson, General Electric Co., West Lynn, Mass., member of the National Academy of Sciences; Lieutenant Colonel Edward B. Vedder, of the Army Medical

[1] Held under the auspices of the Committee on Safety Rules and Accident Prevention of the National Electric Light Association. Edited by Professors Howell, Stewart and Thomson.

School; Major Frank G. Young, of the Ordnance Division of the War Department.

A telegram was received from Surgeon-General Gorgas that Dr. Charles H. Frazier, professor of surgery, University of Pennsylvania, is to represent his office. (In a subsequent communication Major Frazier accepted his appointment.) Conferees: Mr. P. H. Bartlett, Philadelphia Electric Company; Mr. Wills Maclachlan, Electrical Employers Association, Toronto, Canada; Mr. C. B. Scott, chairman of the sub-committee on accident prevention N. E. L. A.; Dr. F. E. Schubmehl, General Electric Co., West Lynn, Mass.

The object of the commission, the chairman stated, is to consider efficient methods of artificial respiration in emergency cases, *as they are met with in peace as well as in war.* For more than a century, England has had several life-saving societies, and many special commissions have been appointed to investigate the methods employed in resuscitation. In this country, about six years ago, a commission on resuscitation from electric shock was created for the first time, by the initiative of the National Electric Light Association. It is now generally recognized that efficient artificial respiration is, for such conditions, the best and practically the only means available for resuscitation. It requires but little consideration to realize that the need for an efficient means of artificial respiration is very wide-spread.[2] The committee on safety rules and accident prevention of the N. E. L. A., of which Mr. Eglin is the chairman, agreed that *the Third Resuscitation Commission should consider its problems from a general point of view.*

Mechanical Methods.—Dr. Meltzer demonstrated in the laboratory for physiology and pharmacology, the efficiency of the method of pharyngeal insufflation in an etherized dog after complete removal of the anterior wall of the thorax, in which the lungs and heart were exposed to full view.

Dr. Rossiter, of the Carnegie Steel Company, demonstrated the latest device of the Pulmotor Company, which is not identical with the original pulmotor. He showed also the original pulmotor. He stated that he had resuscitated eight gas cases, in which the respiration had stopped. This was done by the original pulmotor, in which he had more confidence.

Dr. James M. Booher, medical director of the Life Saving Devices Co., demonstrated the lungmotor. He showed a number of blood-pressure tracings, taken from animals which had received artificial respiration by means of this apparatus. In reply to a question, Dr. Booher stated that in these experiments the lungmotor was connected with the animal by means of a tracheal cannula. (In human cases the lungmotor is applied by means of a face mask.) Dr. Booher left with the commission histories of a number of cases in which the lungmotor had been used. (The commision found no time to examine these written histories, but Dr. Booher mentioned verbally especially two cases. One of these cases was subsequently investigated by the chairman. The life of a poliomyelitis patient with complete paralysis of the respiration was maintained for thirty-six hours by means of the lungmotor. The reporting physician is of very good standing.)

In introducing Mr. Foregger, the chairman explained that the physician who was most competent to present the details of the apparatus of the Foregger Company is now in France. The apparatus consists in modifications of the insufflation apparatus of Meltzer. Among other changes, the apparatus carried an oxygen generator tank. In reply to a question, Mr. Foregger stated that the oxygen thus generated may last eight or ten minutes.

[2] For instance, in injuries to the head which stop respiration, injuries to the chest (especially double pneumothorax) in laparotomies during which the respiration ceases occasionally, in cases of shock which occur in peace and more so in the present war, in poliomyelitis with stoppage of respiration, in post-diphtheretic paralysis, in poisoning by opiates, by volatile gases (ether, chloroform, etc.) by mine and fuel gases, poisoning by magnesium salts, in electric shock and in drowning.

Manual Methods.—Mr. Eglin read a letter from Mr. M. W. Alexander, of the General Electrical Co., stating that he hoped the "commission would be very definite in recommending the prone-pressure method, as experience has proved its value."

Mr. C. B. Scott stated that the accident prevention committee of the N. E. L. A. had reached the point in its investigation where it felt that the prone-pressure method was best to recommend, bearing in mind that machines are not always available in emergencies. His own company had had nine successful cases of resuscitation by the prone method and three unsuccessful cases in which mechanical means were used.

Dr. Schubmehl stated that the prone-pressure method has been most successfully applied by their two hundred and twenty-five first-aid men.

Mr. Maclachlan stated that he had the duty of training possibly three thousand men in the prone method. Their system required the men to practise this method at least once a month. The men are instructed not to desist in less than three and a half hours, and that not till then should they listen to advice from a physician who might tell the operator that the patient was dead.

The secretary read the following parts of a letter from Professor Schäfer, of Edinburgh, to the chairman: "The prone method has been adopted *exclusively* for about twelve years by the Royal Life Saving Society, the only important organization in the British Empire whose object is the resuscitation of the apparently drowned. It has also been adopted for several years by the London and other Police Force, by the Board of Trade, by the Army and the Navy." "The most important thing is in cases of drowning to have something ready which any man can use; which will effect respiratory exchange—whether exactly as much as normal, matters very little."

RESOLUTIONS ADOPTED BY THE COMMISSION

In the discussion following the presentation of methods and evidence to the commission the following important facts were emphasized:

1. That in most accident cases no resuscitation apparatus is at hand for immediate use.
2. That reliance upon the use of special apparatus diminishes greatly the tendency to train persons in the manual methods and discourages the prompt and persevering use of such methods.
3. That police officers or physicians often interfere with the proper execution of manual methods, in that they direct that the patient be removed in an ambulance to some hospital, thus interrupting the continuance of artificial respiration.
4. That in many hospitals the members of the staff are not all acquainted with the methods of artificial respiration.
5. That in medical schools instruction is not properly provided for students in the manual methods of artificial respiration.

In view of these facts the following resolutions were adopted by the commission:

1. The prone-pressure or Schäfer method of resuscitation is preferable to any of the other manual methods.
2. Medical schools, hospitals, fire and police departments, the Army and Navy, first aid associations, and industrial establishments in general, should be urged to give instruction in the use of the prone-pressure method of resuscitation.
3. Individuals who, from accident or any other cause, are in need of artificial respiration, should be given manual treatment by the prone-pressure method immediately on the spot where they are found. It is all important that this aid be rendered at once. The delay incident to removal to a hospital or elsewhere may be fatal, and is justifiable only where there is no one at hand competent to give artificial respiration. If complications exist or arise, which require hospital treatment, artificial respiration should be maintained in transit, and after arrival at the hospital, until spontaneous respirations begin.
4. Persons receiving artificial respiration should, as much as possible, be kept warm and the artificial respiration should be maintained till spontaneous breathing has been permanently restored, or as long as signs of life are present. Even in cases where there is no sign of returning animation, artificial respiration should be kept up for an hour or more.
5. A brief return of spontaneous respiration is not a certain indication for terminating the treatment. Not infrequently the patient after a temporary recovery of respiration stops breathing again. The patient must be watched and if normal breath-

ing stops, the artificial respiration should be resumed at once.

6. Artificial respiration is required only when natural respiration has ceased. In cases of simple unconsciousness from any cause in which natural respiration continues, artificial respiration should not be employed without medical advice.

7. The commission recommends that in cases of gas asphyxiation, artificial respiration, whether given by a manual method or by special apparatus, should be combined when possible with the inhalation of oxygen from properly constructed apparatus.

8. With regard to the employment of mechanical devices for artificial respiration the commission feels that it ought not at present to take a definite stand either for or against any particular form of apparatus. However, the commission recommends, that the use and installation of apparatus should be confined, for the present, to properly equipped institutions under medical direction. The commission recognizes the great need of simple devices capable of performing artificial respiration reliably and efficiently. It therefore recommends careful study of the problem, directed toward *the development of a reliable method appropriate for general adoption.*[3] Such studies can best be carried on in properly equipped hospitals and laboratories which offer opportunities and facilities for critical observation and experimentation.

In view of the importance which the knowledge of proper methods of resuscitation possesses for public health and safety, and considering the fact that many practitioners, members of hospital staffs and graduates of medicine are not thoroughly familiar with the methods of resuscitation, especially that of the prone-pressure method, the commission recommends:

(*a*) That medical journals (and other scientific and practical journals which are interested in the problem of resuscitation) be asked to publish the resolutions adopted by the commission.

(*b*) That a copy of these resolutions be sent to the medical colleges with a request that proper instruction in this subject shall be arranged for in the *College Schedules.*

(*c*) That these resolutions be sent to as many hospitals as possible, with the recommendations that members of the house staff shall familiarize themselves with the methods of resuscitation.

[3] See Appendix.

(*d*) In order that the resolutions of the commission may be brought to the attention of interested circles (fire and police departments, industrial plants, etc.) it was agreed that they be communicated to the Associated Press (by the National Electric Light Association).

It was voted that the Third Resuscitation Commission should be properly organized and continue its existence, ready to respond when requirements arise. The following officers were elected:

President—Dr. S. J. Meltzer.
Vice-president—Dr. Yandell Henderson.
Secretary—Dr. Reid Hunt.
Treasurer—Mr. W. C. L. Eglin.

It was voted to appoint a committee for the collection of verifiable data relating to resuscitation. The president appointed to the committee—

Dr. D. Edsall—Chairman,
Dr. Reid Hunt—Secretary,
Professor Elihu Thomson, and the President Ex-officio.

APPENDIX

The commission consists of fifteen members. Fourteen approved the foregoing report without qualifications. The fifteenth member wishes to qualify his vote by the following

Statement

Dr. Yandell Henderson qualifies his support of the resolutions as follows:

While I concur in a considerable part of the report of the Resuscitation Commission I dissent from the statement in Resolution 8 recognizing "the great need of simple devices capable of performing artificial respiration reliably and efficiently."

Devices which are excellent from the mechanical standpoint are now available and widely sold; but the evidence regarding them indicates clearly, I believe, that even if these devices were on the spot where several gassings or electrocutions occurred, and if all the victims were treated with them, except one who was given manual (prone pressure) treatment, this one would have much the best chance of recovery. In actual practise the apparatus is seldom right on the spot adjusted and ready. Critical time is lost, and thus in the above suppositious cases, as they actually occur, the only victim with any considerable chance of resuscita-

tion (aside from those who recover spontaneously and are credited to the apparatus) is the one treated manually.

Even more important is the fact, demonstrated now by universal experience, that when apparatus is known to be obtainable, it is sent for and the manual method neglected. Thus to-day the apparatus in public use is on the whole contributing very materially to decrease the saving of life.

SCIENTIFIC EVENTS

PROTECTION GIVEN MIGRATORY BIRDS BY AMENDMENTS TO THE BIRD-TREATY ACT

THE United States Department of Agriculture announces the promulgation of amendments and additions to the Migratory Bird-Treaty Act Regulations effective October 25, 1918.

Hereafter the open season for black-bellied and golden plovers and greater and lesser yellowlegs in Texas will be from September 1 to December 15. Another change prescribes a daily bag limit of 50 sora to a person in addition to the bag limit of not to exceed 25 for other rails, coots and gallinules.

An amendment of Regulation No. 6 has the effect of removing the limitation on the number of birds that may be transported within a state during the federal open season. The export of migratory game birds is limited to two days' bag limit during any one calendar week of the federal season. Persons must comply with state laws further restricting the shipment or transportation of migratory birds.

An amendment to paragraph 2 of Regulation No. 8, which is of great interest to breeders of game, permits migratory water fowl raised in domestication to be killed by shooting during the respective open seasons for waterfowl, and the sale thereof to state laws; but after March 31, 1919, such waterfowl, killed by shooting, can not be sold or purchased unless each bird, before attaining the age of 4 weeks, shall have had removed from the web of one foot a portion thereof in the form of a "V" large enough to make a permanent well-defined mark, which shall be sufficient to identify it as a bird raised in domestication.

Another amendment provides that the plumage and skins of migratory game birds legally killed may be possessed and transported without a federal permit. Provision is also made for the issuance of special permits authorizing taxidermists to possess, buy, sell and transport migratory birds.

Two new regulations have been added. Regulation No. 11 provides for the issuance of permits authorizing persons to sell migratory game birds lawfully killed and by them lawfully held in cold storage on July 31, 1918. Such birds may be sold under permit until March 31, 1919.

Another new regulation is as follows:

> Nothing in these regulations shall be construed to permit the taking, possession, sale, purchase or transportation of migratory birds, their nests and eggs contrary to the laws and regulations of any state, territory or district made for the purpose of giving further protection to migratory birds, their nests and eggs when such laws and regulations are not inconsistent with the convention between the United States and Great Britain for the protection of migratory birds concluded August 16, 1916, or the migratory bird treaty act, and do not extend the open seasons for such birds beyond the dates prescribed by these regulations.

This regulation is a restatement of the substance of section 7 of the migratory bird-treaty act, and is intended to remove the confusion and uncertainty that exists in regard to the effect of the federal law and regulations on state game laws.

The federal migratory bird-treaty act regulations prohibit throughout the United States the killing at any time of the following birds: Band-tailed pigeon; common ground doves and scaled doves; little brown, sandhill and whooping cranes; wood duck, swans; curlews, willet, upland plover, and all shore birds (except the black-bellied and golden plovers, Wilson snipe or jacksnipe, woodcock and the greater and lesser yellowlegs); bobolinks, catbirds, chickadees, cuckoos, flickers, flycatchers, grossbeaks, humming birds, kinglets, martins, meadow larks, nighthawks or bull-bats, nuthatches, orioles, robins, shrikes, swallows, swifts, tanagers, titmice, thrushes, vireos, warblers, waxwings, whip-poor-wills, woodpeckers and wrens, and all other perching birds which feed entirely or chiefly on insects; and also auks, auklets, bitterns, fulmars, gannets, grebes, guillemots,