Part II.—Bibliography and Epitome.

An attempt is being made to provide as far as possible a complete bibliography compiled from the specialist journals dealing only with Psychiatry and Neurology (which are really inseparable) and their ancillary subjects, psychology, anatomy of the nervous system, criminology, etc.

A number of titles may appear to have a very remote relation to psychiatry, but they are included for the sake of completeness.

If any reader can add the names of journals to the following list, which it is hoped to publish each year in the January number, the addition will be gratefully received and acknowledged.

Those journals which are available in the Library of the Royal Medico-Psychological Association are marked " 1," those available in the Library of the Royal Society of Medicine are marked " 2," those in the Library of the British Psychological Society are marked " 3," and those in the Library of the British Medical Association are marked " 4."

The titles of these journals are mostly in the form given by the Board of Editors of Publications of the American Psychological Association, January, 1939. Contributors are requested to use the exact form given below.

PSYCHIATRIC JOURNALS.

Abh. Neur. Psychiat.
Abh. Psychother.
2, 4 *Acta Psychiat. et Neurol.*
3 *Acta Psychol., Hague.*
Acta Psychol., Keijo.
Aliéniste Français.
2 *Allg. Ztschr. f. Psychiat.*
Altersprobleme.
Am. Imago.
2, 3 *Am. J. Orthopsychiat.*
1, 2, 3, 4 *Am. J. Psychiat.*
2, 3 *Am. J. Psychol.*
An. Inst. Psicol. Univ. B. Aires.
Anal. Istit. Neurol. Montevideo.
Analele Psihol (Rumania).
Anales de psicologia, Buenos A.
2, 3 *Année Psychol.*
2 *Ann. Méd. Psychol.*
2 *Ann. Osp. psichiatri. Perugia.*
Arb. Psychiat. Inst. Sendai.
Arch. Anthrop. crim.
2 *Arch. Argent. de Neurol.*
Arch. Argent. Psicol. norm. pat.
Arch. Brasileiros de Hygiene Mental.
2 *Arch. Brasileiros de Neuriatrica e Psiquiatria.*
Arch. Chilenos de Crim.
Arch. Ital. di Studi Neuropsich.

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1, 2 *Arch. Neurobiol.*
4 *Arch. Neurol. Paris.*
Arch. de Neurol. de Bucarest.
1 *Arch. de Neurol.*
2 *Arch. di Antropol. Crim.*
Arch. di Criminol. Neuropsiquiatria y Disciplina Conexas.
2, 4 *Arch. f. Psychiat.*
2, 3 *Arch. ges. Psychol.*
Arch. Internationale de Neurol.
Arch. Ital. Psicol.
Arch. Krim. Anthrop.
1, 2, 3, 4 *Arch. Neurol. Psychiat.*
2, 3 *Arch. Psicol. Neurol. Psichiat. e Psicoter.*
2, 3 *Arch. Psychol. Genéve.*
3 *Arch. Psychol., N.Y.*
Arch. Relig. psychol.
Arch. Speech.
Arquivos da Assist. a Psicopatas de Pernambuco.
3 *Austr. J. Psychol. Phil.*

Beih. Z. angew. Psychol.
Beih. Zbl. Psychother.
Bol. Inst. Psiquiatria.
2, 4 *Brain.*
3 *Brit. J. Educ. Psychol.*
2, 4 *Brit. J. Inebriety.*
2, 3, 4 *Brit. J. Med. Psychol.*
2, 3, 4 *Brit. J. Psychol.*
3, 4 *Brit. J. Psychol. Monogr. Suppl.*
2, 4 *Bull. de la Soc. de Psychiatrie de Bucarest.*
2 *Bull. de la Soc. Roumaine Neur. Psychiat., Psychol., Endocrin.*
Bull. du Groupement Français d'études de neuro-psychopathologie infantile.
2 *Bull. Los Angeles Neur. Soc.*
Bull. Menninger Clin.
Bull. Soc. Psihol. med. Sibiu.

4 *Canad. Journ. Occup. Ther.*
3 *Cath. Univ. of Amer. Studies in Psychol. and Psychiat.*
2 *Cervello.*
2, 3, 4 *Character and Per.*
2 *Child Develpm.*
Child Develpm. Abstr.
Child Develpm. Monogr.
Child Study.
Chin. J. Psychol.
3 *Comp. Psychol. Monogr.*
2 *Confinia Neurol.*
Contr. del Lab. di Psichologia.
Contr. psychol. Theor.

2 *Deutsche Ztschr. f. Nervenh.*

1, 2, 3, 4 *L'Encéphale.*
2 *Epilepsia.*
Evolut. Psychiat.

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Fiziol. Th. S.S.S.R.
2 *Folia Neuropath. Esthon.*
2 *Folia Psychiat. et Neurol. Japonica.*
2 *Fortsch. Neur. Psychiat.*

3 *Genet. Psychol. Monogr.*
Giornale di Psich. e di Neuropat.

4 *Hum. Factor.*
2, 3, 4 *Hyg. Ment.*

Index Neurol. y Psiquiat.
3 *Indian J. Psychol.*
Industr. Psychol.
Industr. Psychotech.
1, 2, 3, 4 *Int. J. Psychoanal.*
2, 3 *Int. Z. Psychoanal. u. Imago.*

Jap. J. appl. Psychol.
Jap. J. Exp. Psychol.
Jap. J. Psychol.
1, 2, 3 *J. Abnorm. Soc. Psychol.*
3 *J. App. Psychol.*
2, 4 *J. Belge Neur. Psychiat.*
2 *J. Comp. Neur.*
1, 3 *J. Comp. Psychol.*
J. Consult. Psychol.
J. Crim. Law and Criminol.
J. Crim. Psychopathol.
J. de Psychiatrie Infantile.
3 *J. Educ. Psychol.*
J. Except. Child.
3, 4 *J. Exp. Psychol.*
2 *J. f. Psychol. u. Neurol.*
3 *J. Gen. Psychol.*
J. Genet. Psychol.
J. Juvenile Res.
1, 2, 3, 4 *J. Ment. Sci.*
1, 2, 3 *J. Nerv. Ment. Dis.*
1, 2, 3, 4 *J. Neurol. Psychiat.*
J. Neuropath. and Psychiat. Leningrad.
2, 4 *J. Neurophysiol.*
J. Neuropsychiatrique du Pacifique.
J. Parapsychol.
J. of Psychical Research.
J. Psihoteh.
2 *J. Psycho-Asthenics.*
3 *J. Psychol.*
J. Psychol. Moscou.
J. Psychol. Neurol. Leipzig.
2 *J. Psychol. Norm. Path.*
J. Soc. for Psychical Research.
3 *J. Soc. Psychol.*
J. Speech Disorders.

Kriminalistik.
3 *Kwart. Psychol.*

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Mag. psychol. Szle.
Ment. Health.
2, 4 *Ment. Hyg., Lond.*
Ment. Hyg., N.Y.
3 *Mind.*
Mschr. Krim. Biol.
2 *Mschr. Psychiat. Neurol.*

Ned. Tijdschr. Psychol.
2 *Neopsichiatrica.*
2 *Nervenarzt.*
3 *Neue psychol. Stud.*
Neurobiol.
Nevrasse.
Nevropath. i. Psikhiat.
Note e Riv. di Psichiat.
Nowiny Psychjaryczne.
Nuova Riv. di Clin. ed Assistenza Psichiatrica.

Obshch. Klin. Nevropat.
3 *Occup. Psychol.*
2 *Occup. Ther. and Rehabil.*
2 *Onderzoekingen Psychiat-Neur. Klin. Utrecht.*
2 *Ospedale Psichiatrico.*

Person. J.
Pisani.
Polsk. Arch. Psychol.
Prace Psychol.
Proc. Amer. Assoc. Stud. Ment. Def.
Proc. A. Research Nerv. and Ment. Dis.
Psicoterapia (*Cordoba*).
Psyche.
2 *Psychiat. en Neurol. Bl., Utrecht.*
2 *Psychiat. et Neurol. Japonica.*
2 *Psychiat. Neurol. Wchnschr.*
Psychiatry.
1, 2, 4 *Psychiat. Quart.*
2, 3 *Psychoanal. Quart.*
1, 2, 3 *Psychoanal. Rev.*
2, 3 *Psychol. Abstr.*
3 *Psychol. Bull.*
Psychol. Clin.
Psychol. Exch.
3 *Psychol. Forsch.*
Psychol. Index.
Psychol. Monogr.
Psychol. Rec.
3, 4 *Psychol. Rev.*
3 *Psychol. Rev. Monographs.*
Psychol. wychow.
3 *Psychometrika.*
Psychometr. Monogr.
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Quart. Journ. Speech.

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Rass. Neurol. Veget.
Rass. Studi Psichiat.
Rev. Argent. Neurol. Psiquiat.
Rev. di Neur. e Psychiat., S. Paolo.
Rev. di Psiquiatria, Chili.
Rev. di Psiquiatria y Crim.
3 *Rev. Franç. Psychanal.*
Rev. Ibero-Amer. de Anal. Biblio. de Neurol. y Psiquiat.
Rev. Mex. Neurol. Psiquiat.
1, 2, 4 *Rev. Neurol.*
Rev. Neurol. di Buenos-Aires.
Rev. Neurol. Psychiat. Praha.
Rev. Neuropsiquatr.
Rev. Psicol. Pädag.
Rev. Psihol.
Rev. Psiquiat.
Rev. Tchèque de Neurol. et de Psychiat.
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2, 3, 4 *Riv. di Neurol.*
Riv. di Neuro-psiquiatria, Peru.
3 *Riv. di Psichologia.*
Riv. Ital. di Endocrin. e Neurochir.
2 *Riv. Patol. nerv. ment.*
Riv. Psichol. Norm. Pat.
2, 4 *Riv. Sper. Freniat.*
1 *Rocznik Psychjatryczny.*
Rorschach Res. Exch.

1 *Schizofrenie.*
2 *Schweiz. Arch. Neurol. Psychiat.*
Skand. Arch. Psychol.
Sov. nevropatol., psichiatri, psichoguoguia.
Sovetsk. Psikhotekh.

Tohoku Psychol. Folia.
Tr. Am. Neurol. A.
Tr. Beritov. Inst. Tiflis.
Tr. Kostchenko Ment. Hosp. Moscow.
Trud. fiziol. Lab. Pavlova.
Trud. tsentral. psikhonevrol. Inst.

Univ. Calif. Publ. Psychol.
Univ. Ia. Stud. Psychol.
Untersuch. Psychol. Phil.

3 *Z. angew. Psychol.*
Z. Arb. Psychologie u. praktische im Allgemeinen.
Z. Berufsbildung des Pflegepersonals.
Z. Individ. Psychologie.
2, 4 *Z. ges. Neurol. Psychiat.*
3 *Z. Pädag. Psychol.*
Z. Parapsychol.
Z. Psychoanalyse (Tokyo).
3 *Z. psychoanal. pädag.*
2, 3 *Z. Psychol.*
Z. Psychother. med. Psychol.
Z. Tierspsychol.
2 *Zbl. Neurochir.*
1, 2 *Zbl. ges. Neurol. Psychiat.*
Zbl. Psychotherap.

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Hallucination and Perception. *Bosch, G., Mouchet, E., and Alberti, J. I.* . 469
The Cultural Programme of the Psychological Society of Buenos Aires during 1936 and 1937. *Nuñez, R.* 508

A New Chapter in Physiological Psychology: "Touch at a Distance" or "The Sense of Obstacles" in the Blind.

Mouchet reviews the knowledge and theories concerning the sense of obstacles and reports his own observations. Experiments on students show that it exists in rudimentary form among the sighted. He believes that it is a stimulus of unknown nature conveyed by the auditory division of VIII, although it has no apparent relation to sound. It persists when the ears are covered by muffs which deaden sound without obstructing the external meatus. If, however, a barrier which does not obstruct sound is interposed between the ears and the object (the face thrust through a cardboard screen, the ears being posterior), the sensation disappears. The subject may try to supplement the sensation by olfaction. He perceives an obstacle only when it is situated approximately at the level of the meatus. The

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sensation is not co-ordinate with auditory acuity. It is described as a " veil " or " shadow " over the forehead, with a mildly unpleasant affect (" nervousness "). M. E. MORSE (Psychol. Abstr.).

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Neurohistologic Changes Resulting from Insulin and Metrazol "Treatment" in Monkeys. *Finley, K. H., and Brenner, C.* 696

Vascularization and Vulnerability of the Cornu Ammonis in the Opossum.

Carbon monoxide poisoning in the opossum affects primarily the cornu ammonis. Only extensive and repeated poisoning with illuminating gas of high carbon monoxide content leads to lesions in other parts of the brain. However, the destruction of the cornu ammonis in such cases is much more serious and occurs long before lesions in other parts of the brain are produced. The pathologic changes occur on a purely vascular basis.

The vulnerability of the cornu ammonis in the opossum is explained by a simple hydrodynamic effect of the drop in blood pressure and the dilatation of the blood vessels on the velocity of blood flow under the influence of carbon monoxide. Whereas in blood vessels branching dichotomically the fall in the blood pressure is distributed equally, in the rakelike pattern of the vascular system of the cornu ammonis the blood pressure can drop locally below a critical level before this condition occurs in the rest of the brain. On account of the sluggish flow of blood, the nerve cells in these areas are exposed to lack of oxygen and to the poisonous effect of carbon monoxide longer and more severely than are those in areas in which the circulation has not yet reached so low a point.

The suggestion is made that the results obtained in the opossum may lend themselves to a satisfactory explanation of the selective vulnerability of Sommer's sector of the cornu ammonis in man, which has a rakelike vascular pattern of the type seen in the opossum. (Author's abstr.)

Constitutional Differences between Deteriorated and Non-deteriorated Patients with Epilepsy. IV. The Handwriting.

A study of the literature reveals evidence that handwriting may be accepted as a constitutional mark. The handwriting of the 71 deteriorated and the 40 non-deteriorated epileptic patients was studied for the size of letters and the ratio of the height of the small letters to that of the tall letters. As controls similar data were obtained from 51 patients with dementia praecox, 45 patients with dementia paralytica, 40 imbeciles, 44 school children in the second and third grades, 46 school children in the fourth and fifth grades, 49 children in the sixth and seventh grades, and 46 adults with no nervous or mental disease. All the subjects were males. The following statistically significant differences were found.

1. The average height of the small letters in the handwriting of deteriorated epileptic patients is significantly greater than in the handwriting of non-deteriorated patients.

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2. The handwriting of the institutionalized epileptic patients shows a greater mean value for the height of the tall letters than does the handwriting of extramural epileptic patients.

3. The ratio of the height of the small letters to the height of the tall letters is greater in the handwriting of deteriorated epileptic patients than it is in the specimens of writing obtained from the non-deteriorated patients.

Evidence is presented to show that the foregoing differences are due not to mental deterioration in the institutionalized patients, but probably instead to differences in development of the cerebral centres used in writing.

It appears that a constitutional difference in the character of the handwriting is present between mentally deteriorated and non-deteriorated patients with epilepsy. Further, this difference is probably due to a failure of the cerebral centres used in writing to attain full maturity in the deteriorated patients. (Authors' abstr.)

Action Potentials of Muscles in Athetosis and Sydenham's Chorea.

Action potentials of muscles in patients with athetosis and Sydenham's chorea have been studied. A number of features characteristic of the specific type of motor innervation in these diseases can be recognized by comparing records obtained from different motor units of one muscle in their relation to each other and to the whole muscle, and also by comparing the behaviour of antagonists in simultaneous leads. These relations are the same in both diseases, in spite of a number of clinical differences in characteristic cases.

1. Motor unit discharges are asynchronous and polyrhythmic in simultaneous leads during both involuntary and voluntary movements. In this respect they resemble normal voluntary innervation.

2. Antagonists are in almost constant, simultaneous innervation, which may be steady or irregular in either muscle, during both involuntary and voluntary movements.

3. During periods of rest no indication of basic or " tonic " innervation is noticed in the muscle.

4. During occasional periods of innervation of the protagonist alone no activity in the antagonist is seen. This seems to indicate that in cases of uncomplicated type the " stretch reflex mechanism " is not active, as in spasticity.

5. In cases in which spastic paraplegia is a complication, a tendency to synchronous motor unit discharge is seen, but the simultaneous innervation of antagonists is the same in these cases as in those of pure athetosis.

6. Alternating tremor may be found as a complication of both diseases. This is considered to be caused by involvement of a different pathologic mechanism.

7. Mechanisms for the origin and transmission of the different types of involuntary movement and the motor unit management are discussed.

8. The relation of voluntary and normal innervation to different forms of motor disorder is discussed. (Authors' abstr.)

Comparative Study of Metrazol Treatment and Control Observations of Schizophrenia.

A group of 100 schizophrenic patients, of whom 78 per cent. had had a psychosis for more than 18 months, underwent a course of metrazol treatment; 71 other patients, of whom 84·5 per cent. had had a psychosis for more than 18 months, were observed as controls. Fifteen more patients, of whom only 13·4 per cent. had had a psychosis for more than 18 months, improved spontaneously while in preparation for the treatment. This report is based on the state of the patient from six months to one year and a half after termination of treatment or control observation.

Various degrees of improvement took place in 18 per cent. of the treated patients —a much lower percentage than that generally reported.

The percentage of the various degrees of improvement in the control group was 8·4.

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Relapses occurred in 11·1 per cent. of the treated patients, in 33·3 per cent. of the control patients, and in 20 per cent. of the patients showing spontaneous improvement.

The treatment was the cause of death in 1 per cent. of the patients.

None of the treated or the control patients recovered. The percentage of patients with marked improvement ranged from 1·3 to 37·5 in the treated group, and from 0·66 to 10 in the control group, in proportion to the duration of the psychosis. The percentage of patients who improved ranged from 5·1 to 50 in the treated group, and from 3·3 to 100 in the control group, depending on the duration of the psychosis. The percentage of patients with no improvement ranged from 12·5 to 93·6 in the treated group, and from 0 to 95·1 in the control group, in proportion to the duration of the psychosis.

The patients who improved spontaneously showed the best results, as measured not only by the frequency, but also by the degree of improvement and by the duration of remissions.

This was the only group in which recoveries occurred—in 14·3 per cent.

Patients with a shorter duration of the psychosis had longer remissions.

The treated as well as the control patients who improved were younger than the patients who did not improve.

Women patients had a somewhat lower convulsive threshold.

In the treated group of patients who improved, the paranoid and the catatonic type were equally represented; in the control group who improved the catatonic type predominated. In the treated and control groups of patients who did not improve the paranoid type predominated. In the group who improved spontaneously the paranoid type constituted the majority.

Both the treated and the control patients who improved gained in weight; about 50 per cent. of the patients who did not improve showed no change in weight.

The most frequent complications observed were temporo-mandibular dislocations during convulsions. In one instance incomplete fracture of the femur and in another a dislocation of the humerus occurred. A transitory rise of blood pressure and an increase in pulse rate following a convulsion were noted in all cases.

(Authors' abstr.)

Vestibular Reactivity in Schizophrenia.

The vestibular reactivity to caloric and rotatory stimulation in 58 unselected male schizophrenic patients and in 20 normal controls has been studied. The caloric stimuli consisted of the injection into the ear of 20 c.c. of water at a temperature of 20° C. during a period of ten seconds, and the rotatory stimuli of 10 turns in a Barany chair during a period of 20 seconds. The variables studied were the absolute number and the average frequency of nystagmic beat $\frac{\text{(number of nystagmic beats)}}{\text{(total duration of reaction)}}$.

The response of the patients to rotatory stimulation was significantly lower than that of the normal controls, the mean of the number of nystagmic beats being 44·9 and 60·8 respectively and the mean of the frequencies 1·32 and 1·68 respectively.

In response to caloric stimulation the difference between the patients and the normal controls was even greater, the mean values for the absolute number of nystagmic beats being 60·2 and 116·4 respectively, and the means for the frequencies 0·82 and 1·34 respectively.

In the experiments with caloric stimulation it was found that in the total group of schizophrenic patients whose vestibular reactivity was generally reduced there was a separate group with particularly low responsivity.

We studied the clinical picture of the patients whose reactivity to both caloric and rotatory stimulation was most reduced, and found (*a*) that all the patients with the syndrome described previously by Angyal (5 in all) fell into this group exhibiting low reactivity; (*b*) that most of the other members of this group were characterized by an extreme degree of apathy, indifference, lack of initiative and

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poverty of mental content; and (*c*) that in the case of a patient with a periodic course alternating between stupor and periods relatively free from symptoms there was considerable parallelism between vestibular reactivity and the clinical state.

The degree of reduction of the vestibular reactivity was not correlated with the duration of hospitalization or with the conventional subtypes of schizophrenia.

(Authors' abstr.)

OCTOBER.

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Experimental Studies on Headache: Further Analysis of Histamine Headache and its Pain Pathways.

1. Of 15 subjects in whom afferent impulses from the superficial tissues of the scalp on one side were blocked by procaine, histamine headache in four, and headache due to pneumo-encephalographic examination in eleven were the same on the two sides of the head.

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2. In twelve subjects obliteration of the circulation of the scalp by a blood pressure cuff modified the intensity of the histamine headache. That the reduction in pain was due to raising the pain threshold by introducing a second pain (the tight cuff) is offered as a likely hypothesis. Of five subjects, obliteration of the temporal artery by manual compression reduced the intensity of the histamine headache on that side in two, but had no effect in three. Complete subcutaneous infiltration with procaine hydrochloride of half the anterior part of the scalp (frontal, parietal and temporal areas on one side), including presumably all the vessels of the scalp in that area, did not prevent severe histamine headache in the fronto-temporal region, bilaterally, which was of equal intensity on the two sides.

3. Injection of histamine directly into the temporal artery resulted in homolateral temporoparietal headache in two subjects.

4. Ligation of the temporal artery on one side in four subjects and of the middle meningeal artery on one side in seven subjects did not influence the intensity of the headache experienced on the two sides after injection of histamine.

5. In seven subjects who had partial section of the sensory root of the fifth cranial nerve on one side (resulting in unilateral analgesia of the lower part of the face in six) histamine headache occurred bilaterally.

6. In seven of eight patients who had complete section of the sensory root of the fifth cranial nerve (resulting in unilateral hemi-analgesia of the face and anterior half of the scalp), histamine headache was not induced on the denervated area, but did occur elsewhere in the head.

7. In a subject with complete hemi-analgesia of the face and head (resulting from a head injury), strictly unilateral hemicrania on the normal side of the head was induced by histamine.

8. Histamine headache was absent in the back of the head on one side, but was present elsewhere in the head in two subjects with lesions of the cervical portion of the cord, causing unilateral occipital analgesia.

9. Section of the seventh and ninth cranial nerves, respectively, in two subjects did not affect the bilateral equality of the headache induced by histamine.

10. Section of both sympathetic trunks in two subjects (cervical portion in one and thoracic portion in the other) had no effect on subsequently induced histamine headache. (Authors' abstr.)

Surgical Division of Commissural Pathways in the Corpus Callosum : Relation to Spread of an Epileptic Attack.

Section of the commissural pathways contained in the corpus callosum may be carried out without any untoward effect on the patient. Such a section may serve to limit the spread of an epileptic wave to the opposite hemisphere. When such limitation occurs, the patients do not seem to lose consciousness or have generalized convulsions. When there are multiple areas from which an epileptic seizure may originate, possibly simultaneously, section of commissural pathways between hemispheres may not have any influence on the seizures. (Authors' abstr.)

Faradic Shock in Treatment of Functional Mental Disorders : Treatment by Excitation followed by Intravenous Use of Barbiturates.

Faradic shock treatment may be considered a psychophysiologic form of therapy. Its chief effect is excitation, but in conjunction with it other forms of psychotherapy, such as explanation, re-education and guidance, must also be employed.

Seventy-three patients with various mental disorders were treated, with results paralleling those reported with other forms of shock therapy. More striking results were obtained in conditions in which the personality was acutely and more or less totally involved (as in paranoid and catatonic types of schizophrenia) than in conditions in which it was partially involved (as in psychoneuroses) over a long period. Five patients with schizophrenia had relapses after treatment, but all responded quickly with further treatment.

Faradic shock treatment does not produce as profound physiologic changes as

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other forms of shock therapy in current use, but it can be controlled better, it is safer to use, and it is relatively more simple and inexpensive to administer. Its use is recommended before the more drastic forms are tried.

Faradic shock treatment is another means of approach to an intricate problem. It may clarify knowledge as to the proper treatment of psychoses, and it may offer new understanding of the mechanisms involved. (Author's abstr.)

Advantages and Danger of Combined Anoxic and Insulin Shock.

Results of animal experiments are presented as a basis for a feasible treatment of schizophrenia by anoxia, the particular procedure being briefly denoted as anoxic shock. After termination of the shock at its peak, twitchings and even violent seizures of short duration may occur, characteristically after resaturation of the blood with oxygen.

Pre-existing cardiac diseases, frequent repetitions of anoxic shock without sufficient rest between or a combination of the shock with administration of anaesthetics or sedatives increases the risk of the method considerably.

Combination of anoxic shock with administration of moderate, subconvulsive doses of insulin from three to five hours prior to its induction enhances the effect on the brain without increasing the risk of the shock, and is considered a promising therapeutic method. Combined anoxic shock and administration of insulin in real shock doses, however, is dangerous.

The common therapeutic factor of the various modern shock and drug therapies for schizophrenia is held to be the general functional readjustment of the central nervous system after the multiple microdestruction of brain tissue that is unintentionally accomplished by all these methods. (Author's abstr.)

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Observations on the Use of Finger Painting in the Treatment of Adult Patients with Personality Disorders.

The subjects of this study were 17 psychotic patients whose diagnoses were distributed among the following categories : Anxiety, hysteria, conversion hysteria, pathologic personality, obsessive-compulsive neurosis, schizophrenia, and reactive depression. Their ages ranged from 16 to 45 years, with an average of 25. Special training or experience ranged from grade school to higher studies in art, music or creative writing. Only three had had training in finger painting. The author concludes that, along with free association, word association, ink-blots, story-telling, and play, finger painting offers an outlet for tension and promises to be a valuable medium for enlisting phantasy material of remarkable spontaneity and significance. M. O. WILSON (Psychol. Abstr.).

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An Experimental Investigation of Negative After-Images of Hallucinated Colors in Hypnosis.

With every subject used in this study, trance hallucination of colors on plain grey cards yielded reports of trance after-images. In each instance the after-

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image so reported was identical with the preconceived ideas of the subject with respect to after-images. When the report of a similarly presented hallucination was made in the waking state, no after-image of any sort was ever reported. After-images of trance hallucinations involving color changes were always reported in both the trance and waking states. After-images in the trance reports varied. Some subjects always reported the complement of the hallucinated color, while other subjects reported the complement of the actual color. The after-images in the waking reports were always the complement of the actual color for all subjects. H. W. KARN (Psychol. Abstr.).

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The Role of the Isolated Conditioned Stimulus in the Integrated Response Pattern, and the Relation of Pattern Changes to Psychopathology.

In three normal dogs in which an alternation of two well differentiated strong and weak stimuli was employed, it was found that the animal, when given a single stimulus throughout the experiment, reacted to one and the same stimulus by alternately strong and weak responses similarly to the sequence in which he had formerly reacted to the two separate stimuli. The reflex to a definite time interval was eliminated by varying the intervals between the strong and weak stimuli from three to seven minutes, though in the experiments for measuring the reactions to the repetitions of the single stimulus the interval was kept constant. The elaboration of a response to the sequence was nearly equal to the reaction to the individual stimuli themselves.

The adaptation to the pattern disappears more or less rapidly in different dogs when the old order is changed. In one of these dogs when the alternation was changed from a simple one to an alternation by pairs there was then some, however very slight, adaptation to the new and somewhat more complex sequence.

In two other dogs no adaptation to the same simple alternation in the one or to a regular routine in the other was evident. One of these dogs had undergone a partial cortical ablation, while the other had a more complex series (+ — + + + — +) instead of strong-weak-strong-weak or strong-strong-weak-weak-strong-strong-weak-weak.

Apparently the ability to become conditioned to the series of the stimuli as a whole, i.e., to form an integrated conditioned response pattern, as measured by the salivary secretion, requires in the dog both an extremely simple pattern and a

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well-balanced nervous system. The results of these experiments, as well as other considerations, clearly demonstrate that there is acting on the organism not only the individual stimulus in its own right, but the context, the whole environmental set-up, in which it occurs. Whether the individual stimulus or the " configuration " to the whole pattern is the dominant factor in the reaction is determined by certain conditions of the experiment, as well as by the constitution of the animal.

(Author's abstr.)

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The Reticulo-Endothelial System.

Evidence is brought forward to show that in schizophrenia the functioning of the reticulo-endothelial system is almost always diminished. Stimulation of the R.E.S. has been attempted by Russian research workers using an anti-reticular cytotoxic serum. The method of preparation of the serum, technique of treatment and an analysis of results are given. S. M. COLEMAN.

The Fundus Oculi in Tuberous Sclerosis.

A case of tumour of the optic nerve head in a patient suffering from tuberous sclerosis is reported. The patient was observed both before and after the onset of the tumour. The pathological studies demonstrated the correctness of the view expressed by Grinker, that these tumours are astroblastic neoplasms of low malignancy. S. M. COLEMAN.

Genetic Determination of Homosexuality.

This study concerning the genetic determination of homosexuality starts with the working hypothesis that the siblings of homosexuals must show a deviation of their sex proportion in favour of the sex to which the proband cases belong, if a part of these homosexual probands are either male or female sex intergrades. Of the 4,200 homosexuals reported by two different police departments, the family study of 1,015 cases taken at random has been made. The sex ratio of their siblings is 1,734 males to 1,432 females, or 121·1 to 100, and thus deviates clearly from the normal proportion of 106 to 100. Further support for the theory is given by the finding that the sex deviation is increased among the siblings of those cases who at the time of their last police registration were over 25 years of age and were therefore more likely to represent genuine homosexuals. The sex ratios for the older and younger groups are 128·3 : 100, as opposed to 113·2 : 100. These results suggest that many cases of homosexuality are hereditarily determined and are best explained by a genetic mechanism, in the sense of Goldschmidt's " Valenz " theory. S. M. COLEMAN.

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Left-sided Weakness.

An unusual syndrome, consisting of left optic atrophy, blood-pressure difference between the two arms and marked weakness of the left arm and left leg, together with slight weakness of the muscles of the right side of the face and the left side of the tongue is described. There was no evidence of syphilis, intrathoracic tumour, aneurysm or coarctation of the aorta. The possibility of an unusual distribution of arteriosclerosis or of an unknown disease of the brain is suggested.

S. M. COLEMAN.

Coma after Insulin Hypoglycaemia.

Post-hypoglycaemic coma is a condition characterized by normal or elevated blood sugar, continued stupor, hyperventilation, tetany and motor excitement and fever occurring after the attempted termination of the hypoglycaemic shock. Observations strongly suggest that acute transient adrenal cortical deficiency plays a part in the production of this condition. This is further supported by the fact that the most effective treatment is the use of salt solution and adrenal cortical hormone.

S. M. COLEMAN.

Speech Studies in Cretins.

Analysis of the correctness of speech sounds reveals that only one child (juvenile hypothyroid) responded to all the 98 sounds, and that no child rendered all the given sounds correctly. The relation of age and I.Q. to the various errors, discussed under omission, substitution, approximation, prolongation, showed that most of these occurred in the lower age and I.Q. levels. The group compared favourably with a group of normal six-year-old children. The study indicates that these cretins are able to express the majority of elemental sounds, their speech ability being at the four- to five-year-old level.

S. M. COLEMAN.

Artificial Fever in Multiple Sclerosis.

The results in 51 cases of multiple sclerosis treated by fever therapy indicate that it should be tried in early cases, of short duration and ambulatory without assistance. In the intermediate types less vigorous methods of therapy are indicated, while in the bedridden group fever therapy does no good and may do harm.

S. M. COLEMAN.

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*Movements Elicited from Precentral Gyrus of Adult Chimpanzees by Stimulation with Sine Wave Currents. *Hines, M.* 442

Activity in the Simplest Spinal Reflex Pathways.

A shock which excites $\frac{1}{4}$ to $\frac{1}{2}$ of the fibres of maximal and nearly maximal conduction velocity in the seventh lumbar or the first sacral dorsal root of the decerebrated cat typically produces in the corresponding homolateral ventral root a reflex discharge, with a central delay varying between 0·65 and about 1·0 msec. Conditioning the cord by means of a previous dorsal root volley may decrease the central reflex time slightly, but no procedures have reduced it below about 0·5 msec. Ventral root discharges resulting from direct electrical stimulation of the central grey matter demonstrate that the synaptic delays at the motoneurons vary over a similar range of values. Consequently central reflex times of 0·5 to about 1·0 msec. represent activity in reflex arcs of two neurons (one synaptic relay). It is not possible to state whether or not longer synaptic delays sometimes occur, for central reflex times as short as about 1·0 msec. may conceivably pertain to activity in arcs of three neurons.

Motoneurons may respond at any or all central reflex times for several milliseconds after the first discharge to a dorsal root volley—a result to be expected even if the synaptic delays at interneurons as well as at motoneurons range between limits no wider than 0·5 to 1·0 msec. Nevertheless, the synapse times show modes, and large groups of motoneurons are typically discharged at particular central reflex times.

Direct excitation of motoneurons by the primary sensory fibres offers a method of testing the synaptic excitability of the motoneurons. The motoneurons are facilitated for some time after the arrival at the cord of a volley over a contralateral dorsal root. During the period of facilitation, as can be determined from cord leads, the motoneurons are receiving a barrage of impulses from interneurons. Facilitation, therefore, is accomplished by convergence of internuncial impulses with the impulses of the testing volley. A period of inhibition sometimes follows the facilitation. The inhibition must be attributable, at least in part, to subnormality in the few motoneurons which were fired by the crossed volley. An additional factor for inhibition may be subnormality in the neurons of internuncial systems which tonically barrage the motoneurons; for following the increased activity of the period of facilitation, the number of internuncial impulses impinging upon the motoneurons is reduced below the resting level. (Author's abstr.)

Influence of Sensory Systems on Spontaneous Activity of Cerebral Cortex.

The activity of cortical brain cells in cats under deep nembutal anaesthesia disappears on transection of the brain-stem at the colliculi, on destruction of the optic thalamus, or on cutting the thalamocortical radiations. Removal of the cerebellum, the opposite hemisphere, the occipital and the frontal pole does not abolish the discharge in the remaining cortex. Separation of the cortical connections to the thalamus, however, promptly stops the activity. These observations show that under nembutal anaesthesia the spontaneous activity of the cortex is dependent upon the integrity of the sensory pathways.

Stimulation of sensory nerves, of the thalamus, or of thalamocortical fibres at rates between 6 and 20 per minute evokes, under nembutal, discharges which appear

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like the spontaneous bursts of activity, both in pattern and in widespread distribution throughout the cortex. Stimulation at faster rates (16 to 20 per sec.) for 1 to 5 seconds sets up an after discharge lasting several minutes. This also is widespread throughout the cortex.

These two lines of evidence show the importance of the sensory systems of the body in shaping the character of the continuous spontaneous activity of cortical brain cells. (Authors' abstr.)

Choline Esterase in Brain and Spinal Cord of Sheep Embryos.

1. Choline esterase is present at a high concentration in the spinal cord of sheep foetuses at an early age of gestation (60–80th day). It is low at that time in brain centres, where it rises rapidly during the last weeks before birth. The experiments emphasize the close relationship between function of brain centres and the enzyme studied.

2. In striated muscle the enzyme is also highly concentrated at the region of nerve endings at an early age long before end plates appear.

3. A remarkably high concentration is found in extrinsic eye muscles, this, too, at an early period. (Author's abstr.)

Central Course of " Recurrent " Sensory Discharges.

The observations presented here do not support the hypothesis that the " recurrent sensory-like " discharges are conducted through the spinal cord and out again toward the periphery in a single continuous fibre. They indicate that at least two fibres may be involved, and emphasize the need for a reinvestigation of the physiological relations of their central pathway. (Author's abstr.)

Intercortical Connections of Corpus Callosum as Indicated by Evoked Potentials.

In monkeys and cats under barbiturate anaesthesia single electrical shocks were applied to the cortex of one hemisphere and the other cortex explored for evoked potentials. The only regions not studied were those which cannot readily be exposed by removal of the calvarium. In general it may be said that localized stimulation of one cortex gives rise to distinct evoked potentials in one or more specific places on the other cortex. The magnitude of the response is quite variable ; it may be as large as several millivolts. In general the waves are diphasic and sometimes have a duration as long as 100 msec.

The largest and most readily detected potentials are those obtained when the stimulating and recording electrodes are placed on symmetrically situated points of the two cortices. In the cats studied all regions yielded potentials from symmetrical contralateral stimulation. With the exception of the operculum of the occipital lobe (area 17) the same was true of the monkeys. Localized stimulation within certain areas may evoke potentials sometimes in other contralateral areas. The responses obtained under the conditions of these experiments are mediated by direct callosal fibres and are not dependent upon intracortical spread of activity. In general the evoked potentials are quite sharply localized. They are fairly reproducible from animal to animal.

These effects are completely abolished by section of the corpus callosum. (Author's abstr.)

An Analysis of Cortical Potentials Mediated by the Corpus Callosum.

In cats under barbiturate anaesthesia single electrical shocks applied to the cortex of one cerebral hemisphere evoke potentials at one or more points on the cortex of the other hemisphere. These responses are mediated by the corpus callosum. The potential wave is typically diphasic ; it is composed of an initial surface positive component lasting about 75 msec. If a convulsant drug such as picrotoxin is applied to the surface of the pia under the pick-up electrode the negative

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component is greatly increased in magnitude and the positive component is increased slightly. If an anaesthetic drug such as nembutal is applied, the negative component is completely obliterated, but the positive component undergoes no change.

By inserting micro-electrodes to various depths in the cortex and underlying white matter during the action of convulsant and narcotic drugs, it has been possible to gain some knowledge of the origin and course of the impulses which give rise to the potential changes recorded from the pial surface. The results indicate that the ascending fibres of the callosum ramify in the upper layers of the cortex and end in the first layer, where they make synaptic connections with descending interneurons which lead to the deeper cortical layers. The ascending fibres give rise to the surface positive component of the wave, the descending internuncial fibres to the surface negative component. (Author's abstr.)

Function of Mesencephalic Root of Fifth Cranial Nerve.

1. Using the Horsley-Clarke sterotaxic instrument for localization, action potentials in 20 cats have been picked up from the mesencephalic root of the Vth cranial nerve with a unipolar lead to a 5-stage resistance-coupled amplifier with a differential input and then to a cathode ray oscillograph and loud speaker.

2. Action potentials, characteristic of proprioceptive impulses elsewhere, have been elicited from all portions of the mesencephalic root in response to opening of the jaw and thence stretch of the masticator muscles. Careful histological study of the brain stems has demonstrated that this response was elicited only when the lead was within the homolateral mesencephalic root, never from surrounding neural structures or the contralateral root.

3. From the caudal half of the mesencephalic root action potentials have been elicited also from blunt pressure stimulation of the homolateral teeth and hard palate. In the cat, the canine teeth have been by far the most responsive of the oral structures.

4. The physiological evidence here presented demonstrates the function of those mesencephalic root fibres found in degeneration experiments to enter the alveolar and palatine nerves. Impulses traversing these fibres to the motor nucleus are probably chiefly inhibitory, preventing damage to the structures concerned in biting (gums, teeth and hard palate). These impulses and those passing over the masticator nerves from the muscles of mastication, mediated by the mesencephalic root fibres, constitute the afferent limbs of masticator reflex arcs, thereby co-ordinating and controlling chewing movements.

5. No action potentials have been elicited from the mesencephalic root of V, or from the IIIrd, IVth or VIth nerves as the result of stretch of the extrinsic ocular muscles. The authors realize that this evidence does not exclude the mesencephalic root from a role in the sensory innervation of the ocular muscles.

6. Absolutely no evidence has been obtained to support the assertion by other workers that the mesencephalic nucleus gives rise to cranial autonomic fibres passing to facial and tongue muscles. On the contrary, evidence is presented which indicates that an autonomic function for mesencephalic root fibres is highly improbable. (Authors' abstr.)

Oculomotor Nerve and Reflex Dilatation of Pupil.

Observations upon the diameter of the pupil in the cat following preganglionic parasympathectomy, pre- and postganglionic sympathectomy and combinations of these procedures indicate that inhibition of the third nerve is responsible, not only for the reflex dilatation elicited by withdrawal of light and by painful stimulation, but also for the immediate dilatation conditioned by emotional excitement.

The sympathetic and the parasympathetic are opposed in their action upon the pupil. Under ordinary conditions sympathetic dilator tone is remarkably constant, while third-nerve constriction is subject to extreme reflex modification. Consequently changes in the size of the pupil depend upon reflex variations in the activity

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of the oculomotor nerve. That sympathectomy effects a diminution in the extent and the rate of reflex dilatation demonstrates that in normal animals the dilatation caused by inhibition of the sphincter pupillae is augmented by the tonic contraction of the dilator muscle.

Observations are reported which lead to the conclusion that nembutal depresses sympathetic activity. (Authors' abstr.)

Movements Elicited from Precentral Gyrus of Adult Chimpanzees by Stimulation with Sine Wave Currents.

The precentral gyri of three adult chimpanzees were explored with the 60 c.p.s. sine wave currents. The movements elicited were interpreted as activation (i) of discrete motor nuclei of the cranial and spinal nerves, and of parts of these nuclei; (ii) of groups of motor nuclei within the spinal cord which innervate extensor or flexor sheets of skeletal muscles; and (iii) of brain stem integration systems. Certain of the co-innervations suggest cortical selection of nuclear groups, such that use patterns were elicited.

The most frequently elicited movements of skeletal muscles were those of the digits, flexion of the lateral four and adduction of the first. Isolated movements of 2nd or 5th fingers were rare; those of the 3rd and 4th fingers did not occur.

Different loci for antagonistic movements at the joints were obtained.

Vocalization, a light whistle, and salivation were produced in one chimpanzee. The postcentral gyrus responded without previous facilitation.

The liminal strength of the stimulating frequency for area 4 (arm and leg) was higher (0·22 to 2·0 mA.) than for the face area (largely area 6) (0·2 to 1·5 mA.).

A single point on two of these precentral gyri was stimulated with a range of double vibrations (5 to 1440 c.p.s.) of the sinusoidal current. 90 c.p.s. was the optimum frequency for each of these points. The frequencies eliciting movements which in their timing, sequence and smoothness resembled characteristics of the unanaesthetized animal were those in the neighbourhood of the optimum.

(Author's abstr.)

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Studies in the Psychology of Stuttering. XVI. Rhythm as a Distraction in Stuttering.

Eighteen adult stutterers were required to read speech materials under 15 different conditions of rhythmic distraction in controlled situations. Gross bodily rhythms, speech rhythms and rhythmic sensory stimulations were used as distractions. Results show that all the rhythms used acted as effective distractions, i.e., reduced the number of stuttering spasms. The author concludes that, since certain distractions reduce it, stuttering is not basically a phonetic difficulty. An understanding of the mechanism of distraction would lead to the discovery of the basic nature of stuttering itself. Further lines of investigation are suggested.

C. V. HUDGINS (Psychol. Abstr.).

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The Effects of Prefrontal Lobotomy on Depressed Patients.

The operative procedure of prefrontal lobotomy was done on a group of 13 patients with severe depression, agitation, and apprehension, to see if relief could not be obtained from their suffering and, at the same time, to see if the operative procedure would affect the mental abilities of these psychotic individuals. The effects of this operation were thus studied from two aspects, the therapeutic and the psychological.

Social histories were obtained and the Stanford-Binet Intelligence Examination was administered prior to the operation. On some of these cases it was not possible to obtain valid test results because of the mental condition. After the operation detailed progress notes were made, and the patients were retested with the Stanford-Binet. If the patient was furloughed home, correspondence with the guardian kept us informed of the patient's progress.

On 11 of these patients the operation was performed on both prefrontal lobes; and on the other two patients the operation was done on one lobe only—the left lobe on one patient, and the right lobe on the other.

From the results thus far obtained it is indicated that after the operation there is a definite increased psychomotor activity, together with a corresponding emotional uplifting. Any hallucinatory trends present prior to the operation were still present after the prefrontal lobotomy. Apparently there were no consistent changes in the intellectual capacities as measured by the Stanford-Binet except for the free-association test on year 10. Only one patient of those tested was able to pass this test satisfactorily after the operation. Owing to the lack of a control group, it is not contended that the results are due to the operation. The therapeutic efficacy of such procedure awaits objective evaluation of social adjustment.

(Authors' abstr.)

The Application of the Rorschach Test and a Word-Association Test to Patients Undergoing Prefrontal Lobotomy.

The Rorschach test and the Kent-Rosanoff word-association test have been applied before operation and after operation to 30 psychiatric patients undergoing the operation of bilateral prefrontal lobotomy for relief of symptoms of anxiety-depression and emotional tension. The operation consisted of subcortical amputation of the frontal poles just anterior to the ventricles. This report stresses (1) changes in test performances post-operatively as compared with pre-operatively; (2) indications as to functions of the prefrontal area of the frontal lobe as revealed by the test results; and (3) usefulness of the Rorschach and word-association techniques in psychiatric testing. Consideration is also given to the relationship of the test changes to psychotic condition, to change in psychotic condition, and to immediate operative effect. (Author's abstr.)

The 1937 Stanford-Binet Scale as a Technique in the Diagnosis of Schizophrenia.

Findings are presented from Revised Stanford-Binet test results of patients seen during the past two years at the Tulane Psychiatric Clinic.

A list of 13 revised Stanford-Binet response patterns and 13 response qualities characteristic of schizophrenic patients has been compiled. The number of these response patterns and response qualities found in the test results of patients diagnosed as early schizophrenics or as patients showing some tendencies of early schizophrenia seems significantly greater than the number of such response patterns and response quailties found in other patients seen at the Clinic.

Certain response patterns and response qualities seem particularly significant in the discrimination of the schizophrenic group.

Care has been taken to exclude from this study the test results of patients diagnosed as epileptics, mental defectives, and sufferers from organic disease.

(Author's abstr.)

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The Prediction of the Outcome-on-Furlough of Dementia Praecox Patients.

The major problem of the study was to construct a scale, based on items contained in hospital case-history records, for predicting the readmission or non-readmission of dementia praecox patients furloughed or discharged from the State Hospital at Milledgeville, Georgia. The methods used on constructing the scales were modifications of the techniques developed by E. W. Burgess, the Gluecks, Hornell Hart, C. B. Vold and others for predicting the parolability of prisoners.

A weighted and an unweighted scale were constructed on a working sample of 318 patients furloughed at least five years before the time of the study. These patients were divided into four outcome-on-furlough categories, which furnished the criterion for selecting and weighting the scale items. The validation sample of 108 cases yielded C's of ·502 and ·520 between the four outcome-on-furlough categories and the scores based on the weighted and the unweighted scales respectively. The working sample yielded C's of ·545 and ·521, and the combined samples yielded C's of ·474 and ·459 between the four categories and the scores on the two scales. Marked discrimination was obtained between the " least successful " and the " most successful " outcome-on-furlough categories. It was concluded that the instruments have significant predictive value. (Author's abstr.)

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The ontogenetic development of excitation and inhibition of the nervous system was investigated. The reflex and spontaneous movements of rabbit embryos were not accompanied by oscillatory action currents, being tonic. The fact of lowered functional mobility (lability) of the neuromuscular and reflex apparatus of newborn animals is stated. The reflex inhibition observed in animals during the first postnatal month cannot be obtained in newborn ones.

A. YARMOLENKO (Psychol. Abstr.).

The Development of the General Nervous Functions in the Post-natal Period.

The characteristic quality of the reflex apparatus of newborn animals is the ability to react to very different stimuli with the same rhythm of action current. The evolution of the central apparatus in the postnatal period is a gradual differentiation of definite central pathways for localized innervation, characteristic for the complex co-ordinative activity of the central nervous system of adult animals.

A. YARMOLENKO (Psychol. Abstr.).

Mechanisms of Memorizing in Psychoneurotics.

Efficiency in memorizing and reproduction is determined by the attitude of the patient. In hysterical patients an affective attitude connected with subjective tendencies was observed. In neurasthenics the mental attitude is also emotional, but the subjective-affective moments coincide with the objective conditions of the task. This different influence of the volitional-affective attitude explains the difference of the memory process in hysteria and neurasthenia.

A. YARMOLENKO (Psychol. Abstr.).

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The Psychology and Treatment of Alcoholics.

Addiction neuroses are distinguished from other neuroses not qualitatively but quantitatively, through extreme mental and physical disturbance of the self, elevation and spreading of the ego, and eventual identification with a world of fantasy which permits no compromise with reality. Addiction is of two kinds: incorporation (alcohol, caffein, nicotine, etc.), and activity addictions (kleptomania, wanderlust, etc.). All have the same psychology, may co-exist, and affect both schizo- and cyclothymics. Alcohol is the most common intoxicant because of its reputation, ease of access, and association with religious and social customs. Peoples whose religion and way of life favour contemplative isolation prefer opium. Of all races, the Jewish is the least inclined to alcohol. The need is always a regression of the immature, but there is also a healthy, unsought intoxication as in dedication, beauty, love. The treatment of chronic alcoholism consists in detoxication during prolonged sleep, followed by depth psychotherapy.

M. E. Morse (Psychol. Abstr.).

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The Concept of Nervousness.

Nervousness as observed in Japan and China is not due to exhaustion or abnormal constitution, but is anticipatory suffering based on hypochondriacal mood and continued action and reaction.

It is paralyzing death-fear, derived from normal substernal or epigastric sensations associated with anxiety, which are intensely reactivated on subsequent occasions, absorb attention, and impose precautions. The conditions are the same as in hysteria, but the reactions are different. Nervousness is conscious and intellectual; the subject knows the reason for his anxiety. It is most common among introspective, self-controlled, pessimistic young people. One-half of university students are more or less affected. It occurs in three forms: general (so-called neurasthenia); paroxysmal anticipatory anxiety, beginning with observation of or reading about circulatory death; and obsessive hypochondriacal thoughts. The latter are due to misunderstanding of normal thought processes, and the struggle to suppress or refute the idea constitutes the obsession. Psychic resistance is torment. M. E. MORSE (Psychol. Abstr.).

1. Pharmacology and Treatment.

Experiments Concerning the Problem of Chemical Mediation in the Central Nervous System. Rosenbaum, Harry. [*Arch. intern. pharmacodynamie*, **63**, 417–27 (1939).]

Facilitation and lowering of the threshold were obtained in dogs when the legs were stimulated after injections of acetylcholine, suggesting that acetylcholine acts as a transmitting substance in the motor cortex. No acetylcholine was found in the blood leaving the brain. M. L. C. BERNHEIM (Chem. Abstr.).

Distribution of Ethanol in the Different Parts of the Central Nervous System of the Rat after Administration of Various Doses. Olszycka, Laia. [*Compt. rend. soc. biol.*, **133**, 364–7 (1940).]

After intravenous injection of 2·4–3·2 g./kg. of EtOH all parts of the brain contained the same concentration of EtOH except the annular protuberance, which contained slightly less. M. L. C. BERNHEIM (Chem. Abstr.).

Distribution of Ethanol in the Central Nervous System of the Rat when given in association with Butylethylmalonylurea. [*Ibid.*, 368–70.]

The barbiturate does not modify the penetration of EtOH into different parts of the brain. M. L. C. BERNHEIM (Chem. Abstr.).

Antagonism between Strychnine and Ethanol plus Butylethylmalonylurea in the Rat. [*Ibid.*, 422–4.]

The resistance to strychnine is not significantly affected by the simultaneous administration of EtOH and barbiturate. L. E. GILSON (Chem. Abstr.).

Modifications of Nervous and Muscular Excitability in Animals in Hypervitaminosis D. Nitzescu, I. I., Angelesco, C., and Timus, D. [*Compt. rend. soc. biol.*, **133**, 516–18 (1940).]

In dogs given large daily doses of viosterol peripheral nerve-muscle excitability decreased with increase of blood calcium until the blood calcium reached 18 mgm. per cent., then, just before death, there was a large increase in peripheral and cortical excitability. L. E. GILSON (Chem. Abstr.).

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The Effect of Strophanthin on the Circulation through the Cerebral Vessels. Meurer, H., and Osterwald, K. H. [*Z. Kreislaufforsch.*, **32**, 41–53 (1940).]

The circulation through the internal carotid artery in the dog is not essentially changed after therapeutic doses of strophanthin (I). The cerebral vessels must, therefore, be relatively insensitive to I. During vagal tonus after pharmacologic sympathicolysis, the circulation through the internal carotid artery is accelerated by normal doses of I. Toxic doses of I cause an increase or a decrease in the diameter of the cerebral vessels depending on whether the vagal or sympathetic components predominate. Poisoning is caused by the direct action of I on the central nervous system and not by a change in the cerebral circulation.

RUTH BERGGREN (Chem. Abstr.).

Effect of Metrazole on the Activity of Indirectly Stimulated Muscle Preparations. Kollensperger, Friedrich K. [*Klin. Wochenschr.*, **19**, 128–30 (1940).]

Small concentrations (0·005–0·1 per cent.) of metrazole, equivalent to therapeutic concentrations, in Tyrode solution, increase the contractions of muscle preparations. The contractions are decreased by moderate (0·1–1 per cent.) or high concentrations and may be inhibited by the latter. Maximum potency is attained in 1–2 hours. J. PINCHACK (Chem. Abstr.).

Elimination of Metrazole. Dille, J. M., and Seeberg, Victor P. [*Proc. Soc. Exptl. Biol. Med.*, **44**, 624–5 (1940).]

After intravenous injection in cats metrazole is not excreted as such in the urine. It appears to be rapidly detoxified in the liver. L. E. GILSON (Chem. Abstr.).

Effects of Magnesium on the Nervous System in Relation to its Concentration in Serum. Hoff, Hebbel E., Smith, Paul K., and Winkler, Alexander W. [*Am. J. Physiol.*, **130**, 292–7 (1940).]

Concentrations of Mg at which neuromuscular transmission failed and concentrations at which various reflexes disappeared were determined in the cat. The greater the frequency of stimulation, the higher is the concentration of Mg necessary to block transmission. It is probable that Mg affects muscular activity by blocking neuromuscular transmission rather than by means of its depressant action on the central nervous system. E. D. WALTER (Chem. Abstr.).

Bromide Intoxication. Its Occurrence in a Child of Four Years. Harris, Lloyd E. [*Am. J. Diseases Children*, **59**, 835–41 (1940).]

Two cases of severe intoxication characterized by psychic and neurologic changes are described, which developed after administration of large doses of sedatives containing NaBr. One of the children had received 3·8 gm. NaBr a day for five months. The bromide concentrations of the blood were 353 and 450 mgm. per cent., and the urines gave strongly positive tests for bromide. Recovery followed withdrawal of the bromide and administration of NaCl, resulting in reductions of the blood bromide concentrations to 33 and 45·4 mgm. per cent.

E. R. MAIN (Chem. Abstr.).

The Narcotized Condition Produced by Phenobarbital. Takesi, Ikemi. [*Nagoya Igakkai Sasshi*, **50**, 487 *et seq.* (1939); *Nagoya J. Med. Sci.*, **13**, *Abstracts*, 348–9.]

Various doses were given subcutaneously to 82 males and 28 females suffering from insanity (of types not mentioned in the abstract) and 10 normal males and 10 females. The physiological and psychic effects are described. The insane patients (especially the schizoid types) generally reacted more rapidly than the sane ones. In both classes of patients there was generally a period of stimulation before the narcotic action began. W. C. TOBIE (Chem. Abstr.).

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Hydrastine as an Antagonist to Sodium Pentobarbital. Kipple, Helen M., and Dille, James M. [*Pharm. Arch.*, **11**, 21–3 (1940).]

Experiments on rabbits indicate that hydrastine has no value as an analeptic, but it apparently depresses cortical functions as shown by a loss of placement reactions. It stimulates the spinal cord like strychnine, but prolongs the sleep produced by pentobarbital; hence it has a mixed action.

H. M. BURLAGE (Chem. Abstr.).

Poisoning by Barbituric Acid Derivatives. Matousek, Jaroslav. [*Prakticky Lekar*, **16**, 50–3 (1936).]

From suicide cases the author finds that the lethal dose of phenobarbital and barbital ranged from 5 to 10 gm.; phenobarbital was about twice as effective as barbital. From 18 barbituric acid derivatives only adalin and dial possessed distinguishing properties. The Stass-Otto method revealed that most of the dose of the barbituric acid derivatives is found in the urine after an administration by mouth. Intravenous injections of strychnine were effective antidotes for the barbiturate poisonings. FRANK MARESH (Chem. Abstr.).

Effect of Narcotics on the Carotid Sinus Reflex Zone. Asratyan, S. N., and Kuznetsov, A. I. [*J. Physiol. (U.S.S.R.)*, **24**, 964–81 (1938).]

Perfusion of the isolated sinus caroticus of decerebrate cats with $CHCl_3$, chloral hydrate, chloralose, ether and urethan for brief periods stimulated the respiratory centre. When the perfusion was continued for long periods the initial stimulation was followed by depression. Under the influence of large doses of the narcotics over long periods the sensitivity of the sinus receptors to various stimulating agents (acetylcholine, CO_2, lobeline, nicotine, adrenaline, etc.) was reduced or completely disappeared. The analogous effects on the sinus caroticus and the suprarenal capsule are due to the common relation to the sympathetic nervous system.

M. G. MOORE (Chem. Abstr.).

The Influence of Atropine and Physostigmine on the Sensitivity of the Carotid Sinus toward Carbon Dioxide and Potassium Cyanide. Asratyan, S. N. [*Ibid.*, 982–5.]

Experiments on 14 decerebrate cats in which the isolated carotid sinus was perfused with diluted solutions of atropine and physostigmine showed no change in the sensitivity of that organ to CO_2. On the other hand, toward KCN there was a slight decrease in sensitivity after perfusion with atropine and an increase after perfusion with physostigmine. M. G. MOORE (Chem. Abstr.).

Action of Sympathicolytic Agents on Plasma Potassium. Houssay, B. A., and Gerschman, R. [*Rev. soc. Argentina biol.*, **15**, 327–32 (1939).]

Adrenolytic and sympathicolytic agents injected in large doses (Fourneau 933, 20–30 mgm. per kgm.; yohimbine 5 mgm.; ergotamine, 1 mgm.) prevented the increase in plasma potassium produced by the injection of adrenaline or stimulation of the splanchnic nerve and diminished that produced by asphyxia. These substances also produced a prolonged decrease in plasma potassium in dogs (anaesthetized or not). Manipulations and the withdrawing of blood samples produced within five minutes a transitory decrease in plasma potassium in control dogs.

B.C.P.A. (Chem. Abstr.).

The Action of Pervitin on the Circulation and the Pharmacology of the Vegetative Nervous System. Pullen, C. [*Z. Kreislaufforsch.*, **31**, 448–56 (1939).]

The intensity and course of the increase in blood pressure after the administration of pervitin vary in different persons. The analogous behaviour of veritol and ephedrine and the effect of atropine on the blood-pressure curve are shown.

RUTH BERGGREN (Chem. Abstr.).

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The Influence of Curarine on the Parasympathetic System. Backman, E. L., and Meuling, Sten. [*Upsala Lakareforen. Forh.*, **45**, 81–96 (1939).]

The effects of curarine and curare reported in the literature are reviewed with special regard to the autonomic nervous system.

The effect on the intestines of sucklings is especially studied. A curarine solution antagonized the action of acetylcholine, physostigmine, arecoline and pilocarpine. A concentration of 0·7 p.p.m. of curarine exerts a specific depressant effect on the motor action of the intestine. Curarine acts on the parasympathetic mechanism of various organs of the body, more particularly the intestines. Increased concentrations of curarine produce greater degrees of depression of the parasympathetic system. JAMES C. MUNCH (Chem. Abstr.).

Effect of Chronic Morphinism on the Sympathetic Ganglion Cells of Rabbits. Ingersoll, Everett, H. [*Virginia Med. Monthly*, **67**, 406–10 (1940).]

The percentage of histopathological cells is four times as great in the sympathetic ganglia of adult rabbits morphinized for 13 months as in controls.

J. PINCHACK (Chem. Abstr.).

Effect of Autonomic Poisons on the Vegetative Enzymes of the Blood. Sharihova, A. F., and Rapoport, S. Ya. [*Trudy Nauch.-Issledovatel. Inst. Fiziol. NKP* **1**, 230–9; *Chem. Zentr.*, **1**, 442 (1939).]

The autonomic poisons used for the study were arecoline, ergotamine, atropine and adrenaline. Under the influence of those poisons which have a stimulating effect on the parasympathetic system and an inhibiting effect on the sympathetic system, the lipase content of the arterial blood is decreased. Simultaneously there is an increase in the retention of lipase in the kidneys, the normal washing out of lipase from the lungs ceases, and the spleen begins to take up lipase. Poisons which have a stimulating effect on the sympathetic nervous system produce an increase in the lipase content of the arterial blood as well as an increase in the amount of the enzyme washed out by the blood from the lungs and the spleen. Under the influence of such poisons, those organs which normally take up lipase from the blood no longer do so, but rather give up the enzyme to the blood.

M. G. MOORE (Chem. Abstr.).

The Influence of Some Diuretics of the Purine Series on the Blood-Brain Barrier. Kassil, G. N. [*Trudy Nauch.-Issledovatel. Inst. Fiziol. NKP* **1**, 100–4; *Chem. Zentr.*, **1**, 464 (1939).]

The influence of xanthine, uric acid, theobromine, theophylline, diuretin, caffeine and guanine on the permeability of the blood-brain barrier (to the passage of substances from the blood to the cerebro-spinal fluid) was investigated. In no case could a change in the permeability to trypan blue, $Na_4Fe(CN)_6$ or arsphenamine be detected. The substances could always be detected only within the capillaries and blood vessels of the brain; their presence could not be detected in the surrounding region or in the cerebro-spinal fluid. These findings indicate that spasms following large doses of caffeine or theophylline are due to the direct effect of these drugs on the nerve centres. M. G. MOORE (Chem. Abstr.).

Effects of Sympathomimetic Amines on Perfused Blood Vessels. Morton, M. C., and Tainter, M. L. [*J. Physiol.*, **98**, 263–82 (1940).]

Cat hindlegs were perfused with defibrinated blood or Locke's fluid and the vasoconstrictor power of a series of sympathomimetic amines was determined. When defibrinated blood was the perfusion fluid, the vasoconstrictor activities of the compounds with a catechol nucleus or a meta-OH group in the benzene ring were of the same order as their activities *in vivo*, whereas those with an ortho or para-OH or unsubstituted Ph ring tended to be more active on these perfused

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vessels than they were in intact animals. When Locke's fluid was the perfusion fluid, the first group of compounds retained their vasoconstrictor power almost as well as in blood, whereas the second group was greatly diminished in potency, or almost completely inactive. When adrenaline was added to Locke's solution, the responses to tyramine and ephedrine increased in proportion to the adrenaline concentration of the perfusion fluid. E. D. WALTER (Chem. Abstr.).

Actions of Adrenaline and Acetylcholine on the Denervated Iris of the Cat and Monkey. Bender, M. B., and Weinstein, E. A. [*Am. J. Physiol.*, **130**, 268–75 (1940).]

The denervated iris of the cat and monkey differ in their reactions to the autonomic drugs. In general the cat responds with its dilator while the monkey reacts with its constrictor fibres of the iris. The results suggest that excess of acetylcholine stimulates the secretion of adrenaline, and excess of adrenaline stimulates the liberation of a cholinergic substance in the body.

E. D. WALTER (Chem. Abstr.).

The Effects of Insulin on Serum Lipides and Choline Esterase in Schizophrenia. Randall, Lowell O. [*J. Lab. Clin. Med.*, **25**, 1025–8 (1940).]

The concentrations of phospholipides, total cholesterol, free cholesterol, total lipide and the choline esterase in the blood serum of 17 schizophrenic patients treated with large daily doses of insulin increased above the pre-treatment level and remained elevated for two weeks after treatment. In twelve patients studied during the fourth week of treatment insulin did not produce any consistent immediate change in serum lipides, but it increased the choline esterase to a greater extent than could be accounted for by haemoconcentration.

HOWARD W. ROBINSON (Chem. Abstr.).

Relationship between Insulin Dosage, Duration and Degree of Hypoglucemia and Production of Brain Damage (in Cats). Tyler, David B., and Ziskind, Eugene. [*Proc. Soc. Exptl. Biol. Med.*, **44**, 622–4 (1940).]

The larger the dose of insulin the greater the incidence of brain damage. But in any case brain damage did not occur unless the cats were kept in the " medullary stage " of hypoglucaemia for at least 100 minutes.

L. E. GILSON (Chem. Abstr.).

Electrocardiogram during Shock Treatment by Insulin. Grut, Aage, and Lund, Mogens. [*Nord. Med.*, **4**, 3805–8 (1939).]

Electrocardiograms made after administration of (1) insulin alone, (2) insulin + sucrose simultaneously, (3) insulin and after several hours sucrose, showed that only the sinus arrhythmia and perhaps a slight, never pathological, broadening of QRS and QT and a narrowing of PQ might be effects of hypoglycemia. The depression of T must be regarded as insulin effect ; the tachycardia and the U-wave as due to adrenaline or other changes in blood chemistry. The shortening of the mechanical systole must be due to a rise of pressure in the aorta resulting from adrenaline production (secondary to the insulin effect). Only the sinus arrhythmia is due to hypoglycemia and can be treated with sugar ingestion. The other changes are due to direct insulin effect or to hyperadrenalinemia (adrenaline will enhance the changes), or to a combination of these causes.

V. ASCHEHOUG (Chem. Abstr.).

Effects of Steroid Glycosides and Cortin on Insulin Convulsions and Blood Sugar. Zwemer, Raymond L., Pines, Kermit L., and Lowenstein, Bertrand E. [*Science*, **91**, 600–2 (1940).]

Injection of cardiac glycosides elevates blood-sugar level of normal cats and prevents insulin convulsions and death of mice and rats. Both effects are similar

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to those obtained with adrenal cortex extract. In some experiments the protection was effective when the glycosides were given 18 hours or more before insulin injection. FELIX SAUNDERS (Chem. Abstr.).

2. Biochemistry, Pathology, etc.

Histochemistry of the Pituitary. Bienwald, F. [*Arch. path. Anat.* (*Virchow's*), **303**, 576–87 (1939).]

On immersion of the frozen sections of formol-fixed pituitaries in a tartaric acid-thionine mixture, a rose-red to red metachromasia regularly appears in the basophile cells of the anterior pituitary (man, horse, guinea-pig, pig) and in the posterior pituitary tissue (man, mammals, birds, reptiles). This metachromasia indicates the presence of special fatty substances which probably belong to the cerebrosides and phosphatides. It also appears in diseased proliferation of these cells, namely, in the basophile adenomas of the anterior and posterior pituitaries and in the Priesel growths of the posterior pituitary.

RUTH BERGGREN (Chem. Abstr.).

Acid-Soluble Phosphorus Compounds and Lactic Acid in the Brain. Stone, Wm. E. [*J. Biol. Chem.*, **135**, 43–50 (1940).]

The brains of normal mice contain the following average amounts of acid-solution P compounds, expressed in mgm. of P per 100 gm. : inorganic phosphate 16·9, phosphocreatine 10·1, adenyl pyrophosphate 17·2, and " hexose phosphate " 22·5. The phosphocreatine increases and the inorganic phosphate correspondingly decreases during barbiturate anaesthesia, and there is also a decrease in brain lactic acid. After decapitation, brain inorganic phosphate increases at the expense of phospholipides also. Lactic acid shows a large increase. These changes occur during the first five minutes after decapitation, but little further change is observed during a subsequent 25-minute period, probably because of the retardation of enzyme action by the high acidity which develops in the brain soon after death. Methods are described for the determination of inorganic phosphate, phosphocreatine, adenylpyrophosphate, " hexose phosphate " and lactic acid in duplicate on a 1 grm. sample of brain tissue. A. P. LOTHROP (Chem. Abstr.).

Lipide Metabolism in Brain and Other Tissues of the Rat. Sperry, Warren M., Waelsch, Heinrich, and Stoyanoff, V. A. [*J. Biol. Chem.*, **135**, 281–90 (1940).]

After the administration of a single small amount of D-containing fat (linseed oil partially hydrogenated with D) only traces of labelled fat acids are found in the brain. The largest concentrations are found in the liver and intestine, and a large but variable proportion of the total amount of fat given is found in the depot (carcass) acids. The variation bore no evident relation to the time after administration. Rats, even when raised under identical conditions from the same stock, vary markedly in the amount of depot fat. Variability in the storage of fat apparently is a constitutional phenomenon, possibly related to a variable ability to burn or store fat, and must be considered in interpreting findings in investigations of fat metabolism. A. P. LOTHROP (Chem. Abstr.).

A Study of the Synthesis and Deposition of Lipides in Brain and Other Tissues with Deuterium as an Indicator. Waelsch, H., Sperry, W. M., and Stoyanoff, V. A. [*Ibid.*, 291–6.]

The concentration of D in the unsaponifiable and fat acid fractions of the brain, liver, intestine and carcass of adult male rats was determined after nine 7-day periods during which the body fluids were enriched with D through administration of D_2O

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The lipides comprising the unsaponifiable fraction in the brain are replaced at a very slow rate since the concentration of D in this fraction was little above the error of the method. All other tissues contained large concentrations of D. The D concentration in the fat acid fraction of the brain is comparable with that in the depot acids, and as much as $\frac{1}{6}$ of the brain fat acids may be replaced in a week. The liver fat acids contained more D than any other tissue, but its concentration in the unsaponifiable fraction was less on the average than that of the carcass, and no greater than that of the intestine. Thus the liver does not appear to have the same dominant role in the metabolism of unsaponifiable substances as it does in fat acid metabolism. The intestine is an active participant in endogenous lipide metabolism since relatively large concentrations of D were found in both the unsaponifiable and fat acid fractions. A. P. LOTHROP (Chem. Abstr.).

Lipide Metabolism in Brain during Myelination. [*Ibid.*, 297–302.]

The deposition of lipides in the rat brain during myelination was investigated with the aid of D as an indicator. Unsaponifiable lipides and fat acids are deposited at a rapid rate from the 15th to the 19th day of extrauterine life. The rate is considerably less from the 26th to the 30th day and still lower from the 36th to the 40th day. If allowance is made for turnover comparable with that found in adult rats, no marked differences in the rates of deposit of the unsaponifiable and fat acid fractions are evident. The data indicate that lipides deposited between the 15th and the 19th day of life are synthesized in the brain itself. The relationships among the rates of lipide metabolism in the liver, intestine and remaining carcass were in general the same as were found in adult rats, but in most instances the D uptake was considerably higher in the young than in adult rats. Determinations on mother rats agreed closely on most points with the findings in adult male rats. A. P. LOTHROP (Chem. Abstr.).

The Variability of the Amino-Acid Content of the Brain Proteins. Tustanovskii, A. A. [*Biokhimiya*, **3**, 218–30 (1938); *Chem. Zenir.*, **2**, 4273 (1938).]

The diamino- and dicarboxylic acid contents of the total proteins of the brain of adult vertebrates vary within narrow limits. Only in birds is a high arginine content found. The characteristically high arginine content in the early stages of embryonic development sinks after two to three months' growth to the level for the adult animal. A constant value was always observed during the post-embryonic period. M. G. MOORE (Chem. Abstr.).

The Oxygen Consumption in Vitro of Brain Cortex, Kidney and Skeletal Muscle from Adrenalectomized Rats. Crismon, J. M., and Field, J., jun. [*Am. J. Physiol.*, **130**, 231–8 (1940).]

The significant reduction of rate of respiration, based on the dry weight, of kidney from adrenalectomized animals may be causally related to the high rate of respiration of this organ. The use of the wet weight as a basis for expressing results of *in vitro* studies of organ metabolism should be restricted to situations where there is no possibility of a shift of water from one compartment of tissues to another. A clear demonstration of the direct effect of absence of the adrenal cortical hormone on the metabolism of tissues other than the kidney is possible only under conditions which protect those tissues from intercurrent injury and secondary effects of deficiency until sufficient time has elapsed for the specific deficiency to be manifested. E. D. WALTER (Chem. Abstr.).

Fatal Brain Swelling in Psychic Trauma and Some Remarks on the Urea Theory of Brain Swelling. Muller, Walter. [*Arch. path. Anat.* (*Virchow's*), **305**, 230–5 (1939).]

Urea retention was found in some, but not all cases of brain swelling. This argues against the assumption that the urea retention is to be considered merely

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as a transmineralization in brain swelling. Results on rabbits indicate that the urea storage need not result from a circulatory disturbance, but that such a disturbance of the fluid metabolism can also be connected secondarily with a primary overloading of urea in the organism. R. BERGGREN (Chem. Abstr.).

The Question of the Increase of the Urea Content of the Brain in Brain Oedema. Bergner, Gertrude. [*Z. ges. Neurol. Psychiat.*, **169**, 208–15 (1940).]

Contrary to the findings of de Crinis (*ibid.*, **162**, 646 [1938]), no relation was found between the amount of urea in the brain, as determined histologically by the xanthydrol method, and the presence of brain oedema, in 34 autopsies of patients who had exhibited various mental and nervous diseases. The greatest amount of urea was observed in the brain of a patient with cerebral arteriosclerosis without oedema. Only nine of the brains showed oedema, and all showed urea. The high concentrations of urea observed around the blood vessels in the brain indicated that the concentration of urea in the blood was responsible for that in the brain.
MARION HORN (Chem. Abstr.).

The Occurrence of Guanidine-like Substances in the Blood in Essential Epilepsy. Murray, Maynard, and Hoffmann, C. R. [*J. Lab. Clin. Med.*, **25**, 1072–3 (1940).]

During the normal periods of the patients, the basal level of these substances, as determined by the method of Pfiffner and Myers as modified by Andes and Myers (*C.A.*, **31**, 8579[7]), was significantly higher than normal. The levels rose during the aura, reached a high point during the convulsion and at one hour after seizure the values had dropped to the basal level.
HOWARD W. ROBINSON (Chem. Abstr.).

Induction of Epileptic Seizures. Janzen, R., and Homeyer, H. [*Münch. med Wochenschr.*, **86**, 1755–7 (1939).]

Ingestion of 1 litre of fluid together with administration of extracts from the posterior lobe of the hypophysis, causing inhibition of diuresis, resulted in epileptic seizures. MAURICE M. RATH (Chem. Abstr.).

Certain Nutritional Disorders of Laboratory Animals Due to Vitamin E Deficiency. Pappenheimer, Alwin M. [*J. Mt. Sinai Hosp., N.Y.*, **7**, 65–76 (1940).]

The nutritional diseases attributed to vitamin E deficiency are encephalomalacia of chicks, myopathy of ducklings and of the gizzard of turkeys, and muscular dystrophy in guinea-pigs, rabbits and young rats. It is of possible significance for human nutrition and disease that a partial deficiency of vitamin E in the animal mother may manifest itself only in the offspring. J. PINCHACK (Chem. Abstr.).

Occurrence of the V-Factor (Coenzymes I and II) in Normal and Pathological Spinal Fluids. Scheer, Celia. [*J. Immunol.*, **38**, 301–8 (1940).]

Spinal fluids of 56 patients suffering from various diseases were examined for the occurrence of the V-factor (as growth factor required by *Hemophilus influenzae* and *H. parainfluenzae*). In only three cases was the V-factor found. Conclusion: The V-factor, which is present in the blood and brain, does not pass the blood-spinal fluid barrier in normal adults. In certain pathological conditions, however, this interference no longer exists. CHARLES A. ZITTLE (Chem. Abstr.).

Function of the Thyroid and the Pituitary in Mongolism, with a Report on the Blood Groups of American Mongoloid Defectives, and Comments on the Determination of Cholesterol. Benda, Clemens E., and Bixby, Emily May. [*Am. J. Diseases Children*, **58**, 1240–55 (1939).]

Mongolism does not appear to be essentially a hypo- or hyperthyroid condition. The total and esterified cholesterol contents of the serum in 50 persons, aged 2–29

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years, with mongolism were within the normal range. The basal metabolic rates were low or normal, and the concentration of blood sugar was normal. Dextrose-tolerance curves indicated a delayed response suggestive of pituitary hypofunction. The colour development in the Bloor method (*C.A.*, **11**, 1843), for cholesterol, particularly in relation to discrepancies observed in the rate of development in standards treated with EtOH and Et_2O and untreated standards, is discussed. A modified technique is described in which the reaction is stopped immediately after addition of the Ac_2O–H_2SO_4 mixture by chilling for 2–3 minutes and the colour allowed to develop slowly at room temperature in the dark for 40 minutes.

E. R. MAIN (Chem. Abstr.).

Availability of Glucose for Human Brain Oxidations. Wortis, Joseph, and Goldfarb, Walter. [*Proc. Soc. Exptl. Biol. Med.*, **44**, 382–5 (1940).]

The availability of glucose for brain oxidations in hypoglucaemic insulin coma was studied in schizophrenic patients. The intravenous injection of 4 gm. (in 50 per cent. solution) invariably aroused the patient and approximately doubled the oxygen uptake of the brain. L. E. GILSON (Chem. Abstr.).

Cerebral Carbohydrate Metabolism during Deficiency of Various Members of the Vitamin B Complex. Himwich, H. E., et al. [*Am. J. Med. Sci.*, **199**, 849, 1940].

Forty-nine observations were made on 27 polyavitaminotic patients whose most outstanding deficiency disease was pellagra. Samples of blood entering and leaving the brain were examined for O_2, glucose and lactic acid. The arterial-venous differences for O_2 and glucose were less in the patients than in normal subjects. No difference was found between arterial and venous lactic acid. When the pellagra was complicated by beriberi, the arterial : venous O_2 difference was still less. The changes could be due to either an increased blood flow or a decreased cerebral metabolism. The latter is considered the more likely. The diminished brain metabolism may explain the mental changes in pellagrins with accompanying thiamine deficiency. Administration of cocarboxylase did not raise cerebral metabolism in three hours, but did so in one case tested after one week.

FERRIN B. MORELAND (Chem. Abstr.).

The Influence of Brain Extract on Blood Sugar in the Rabbit. I. The Influence of Saline Extract from Various Parts of the Brain of Rabbits on their Blood Sugar. Ito, Sinzi. [*Nagoya Igakkai Zasshi*, **48**, 1085 *et seq.* (1938).]

The extracts were apparently injected (intravenously ?). The effects on the blood sugar were : Cerebrum (cerebral cortex and white matter), no change ; mesencephalon, cerebellum or medulla oblongata, little or no effect. Mesencephalon extract caused an increase, mainly owing to the action of the lower portion of the optic thalamus. Extract of the optic thalamus alone caused only a trivial increase in blood sugar. W. C. TOBIE (Chem. Abstr.).

II. Influence of Alcoholic Extracts of Various Parts of the Brains of Various Animals. [*Ibid.*, 1095 *et seq.*]

Alcoholic extracts of corresponding parts of the brain of rabbits, white rats, pigeons or toads had much the same effects on the blood sugar of rabbits as the saline extracts. Extracts of the mesencephalon, optic thalamus, cerebellum or medulla oblongata of toads in an active state raised the blood sugar ; corresponding extracts made from hibernating toads had no effect.

W. C. TOBIE (Chem. Abstr.).

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The Effect of the Pituitary Body on the Changes in the Biological Activity of the Cerebro-spinal Fluid following Stimulation of the Central Nervous System. *Tseitlin, S. M., and Voskoboinikova, B. A.* [*Bull. biol. med. exptl. U.R.S.S.*, **4**, 223–6 (1937).]

Excitation of the central nervous system stimulates the pituitary body to increased secretion of the melanophore hormone and a parasympathicomimetic substance into the cerebro-spinal fluid. M. G. MOORE (Chem. Abstr.).

Pyruvic Acid in Blood and Cerebro-spinal Fluid. *Bueding, Ernest, and Wortis, Herman.* [*Proc. Soc. Exptl. Biol. Med.*, **44**, 245–8 (1940).]

Pyruvic acid is quite stable in drawn spinal fluid, hence the determination does not have to be made immediately. The amounts found were 70–120 per cent. of that in blood samples taken simultaneously. The normal range for human blood is 0·77–1·16 mgm. per cent. In 51 patients with various diseases blood pyruvic acid was normal. In 13 cases of known vitamin B_1 deficiency it was above normal. L. E. GILSON (Chem. Abstr.).

Brain Glycolysis. *Mazza, F. P., and Lenti, C.* [*Arch. sci. biol.* (*Italy*), **25**, 447–54 (1939).]

Whereas brain extracts possess an active phosphorylating glycolytic system, the extracted brain residue, although actively converting added glucose into lactic acid, does not seem to do so through phosphorylated intermediates. In further experiments, neither esterification of inorganic phosphate nor accumulation of triose phosphate (in presence of $NaHSO_3$) could be detected in experiments with brain tissue which had been extracted with Ringer's solution at 0°. It is believed that brain possesses a double (a phosphorylating and a nonphosphorylating) glycolytic system. B.C.P.A. (Chem. Abstr.).

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