on the smaller and cheaper arc lamps which are run on currents of from 5 to 10 amperes. There is not power enough in them to get deep effects. Arcs running on a 40-ampere current are as weak as can be used. I employ a 50-ampere arc; the regulation Finsen arcs need 60; and the originator of the method used a 100-ampere arc for his work.

With an efficient arc as the source of light, the surface reaction is usually very slight. There is a slight transitory erythema after each treatment, and a deep though not permanent pigmentation finally appears at the margin of the area that is subjected to it. But penetration occurs, and we can hope to affect not only the subcutaneous but also the deeper tissues. This point was settled by the experiments that I made some two years ago, and an account of which was published in the *Medical Record* at that time. Concentrated arc light, that had passed through the entire thickness of the human chest and abdomen, was successfully employed to make a print from a negative on a sensitive plate. The light had to pass through two layers of skin and subcutaneous tissue, fat, muscle, bone, and the red blood, before it could reach the plate; yet a distinctly marked chemical effect was obtained, and successful diapositives were made.

I have elsewhere described the apparatus that I employ, the actinolite, which is the only apparatus manufactured here that has sufficient power to be effective. A very important practical improvement has been made in it during the past year. The water bath required to cut off the heat rays is no longer a separate receptacle. The two condensing lenses are arranged to form the sides of the bath, the water being between them. Several important advantages are thus obtained. There is one piece less of accessory apparatus, and less weight. Then the entire optical part of the apparatus, the lens-waterbath, can be lifted out for changing the water and cleaning the lenses; it is all perfectly and readily accessible. Finally, and most important, all danger of cracking the lenses from their sudden heating up is entirely obviated by their being in contact with the water. It is decidedly discouraging to break lenses worth from \$50 to \$100 in one's work; and it is tedious to have to take ten minutes in running up the rheostat when one begins to work. I now go up to full power in 10 seconds or so without the slightest danger of damage. I have now used this modified lens-bath daily for five months, and am well satisfied with it.

The new iron carbons for the lamps that were proposed by Bang and others last year have not proved so effective as was hoped. Bogrow¹⁷ claims that they burn irregularly, and are difficult to keep adjusted. I have found similar difficulties with the iron-manganese carbons that are on the market here; the white smoky vapor that they produce is objectionable. The idea underlying their employment, of course, is to obtain a more powerful blue-violet spectrum from the incandescence of these metals. As stated above, however, the tendency now is to employ almost the entire range of the spectrum; and there is no special reason for using a form of carbon otherwise disadvantageous for the purpose of obtaining a few more violet rays. I propose in the future to employ the ordinary arc carbons.

LIGHT PENETRATION OF THE SKIN.

Finally, there remains to be mentioned the efforts that have been made to favor light penetration of the

skin by methods other than the inconvenient and often inapplicable compressors. Dreyr¹⁸ found that the addition of a little erythrosin to nutrient media rendered the bacteria and infusoria in them sensitive to the yellow and green rays, just as it does the photographic plate. Thus, a layer of skin 1.25 mm. thick protected a non-sensitized prodigious culture, so that they lived under the light for 11 hours; when the medium was sensitized they were killed in 20 minutes by the same light. In lupus he got a much quicker and greater effect when he used a 1 to 1,000 sterile erythrosin-Grübler solution in physiologic (0.8 per cent.) salt solution. From 0.5 to 1 cubic centimeter was injected after Schleich's method to sensitize an area of from 4 to 6 square centimeters. Four to six hours later, the actinotherapy was applied; vigorous reaction was obtained in 15 minutes in well-vascularized tissue. I have had no personal experience with the procedure. It would probably be impracticable to give the injection several hours before each treatment in any but hospital cases; but if the erythrosin could be applied in some absorptive medium by the patient himself, it might be used.

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THE DIVIDING LINE BETWEEN THE NEUROSES AND THE PSYCHOSES.*

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The temptation to mark out new lines in the field of psychiatry is one that assails all who write on this many-sided subject, and every writer yields to it, the difference being mainly in the completeness of the surrender.

One must classify indeed to write at all, and classification is an alluring and agreeable exercise. Yet I shall indulge in it only to a very limited extent, even though there are few barriers as yet erected in the neuronic territory to keep us from wandering at will. Classifications have, furthermore, contributed much to neurologic and psychologic gaiety, which, in itself, is perhaps a good thing. With all possible respect, one may liken the classifications to a flock of geese, each one of which, however, is to its particular proprietor, a beautiful swan.

Beside the enjoyment to be gotten out of classifications, there is a more substantial good. Doubtless each new effort contains a germ of truth or a new ray of light or a suggestion of interest, and we need discussion and clarification of ideas, admitting that there is as yet no finality, and will not be until we can say more exactly what the brain conditions are which produce mental changes. The disposition, therefore, is natural to shuffle the pack and deal the cards anew, and play the hand as well as one can. The faces of the cards are ever the same, yet the permutations and combinations are infinite in variety. This game, however, is unlike games of chance. The honors are never "easy" and do not come by accident.

Recently, in a meeting of the Section of Psychology of the British Medical Association, Dr. Charles Mercier¹ presented a paper on the classification of insani-

18. Monats. für praktische Dermat., Feb. 1, 1904.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. British Medical Journal, Oct. 3, 1903, p. 830.

17. Monat. für praktische Dermat., Aug. 15, 1903.

ties embodying his ingenious and familiar ideas as to forms and varieties. Dr. W. Lloyd Andriezen discussed the paper, or rather spoke after it had been read, but without referring to any of the points adduced, utilized the occasion to bring forward his own classification and explain its advantages.

More recently, in the Boston Society of Psychiatry and Neurology, Dr. Charles L. Dana² read a paper entitled "The Partial Passing of Neurasthenia," in which he proposed a reclassification of the insanities with inclusion among them of a large section of the hitherto so-called neurasthenias. Dr. Dana's lines of classification, like those of Andriezen, were drawn on an evolutionary basis, which, no doubt, is generally regarded as the safest and most practical foundation for present research. Dr. Dana states that there has been a "renaissance" in psychiatry, and that the good effect has been felt by the neurologist leading to a "more careful study of mental states," which has emphasized the fact that while insanity is "a morbid state, there is a large number of such states that are not insanities, though showing a kinship to them." He would, however, include the so-called neurasthenias which have mental weakness or disorder as their essential characteristic among the mental diseases.

Dr. Dana's proposal emphasizes the fact that insanity has never been satisfactorily defined. He thinks that one-half of the cases now called neurasthenia, including all the hysterias, would thus disappear from among the neuroses and reappear among the psychoses, but makes it clear that if there be a dividing line between neuroses and psychoses, insanity exists on both sides of this line, so far as the views now generally prevailing are concerned. It is also true that in adding certain cases of neurasthenia to the insanities he is adopting a view that has long been entertained by alienists.

Speaking only of recent American writers, I may allude to a very able discussion on "The Borderline Between Sanity and Insanity," in 1898, by our lately deceased confrère, Dr. E. C. Runge,³ before the American Medico-Psychological Association, in which he uses the following language: "When we admit that a case of so-called cerebral neurasthenia may at times simulate the profound psychic changes of the prodromal phase of dementia paralytica so closely as to render an error of diagnosis not only possible but excusable, we put neurasthenia at once in its proper place. Every neurasthenic is, to a variable degree, a psychosthenic. The question is one of degree only, the varying intensity of the disease can not possibly affect its fundamental character." Runge also shows that the only difference between delirium and postfebrile insanity is often simply one of duration. The conclusion which he formulated seems to me irresistible, namely, that "insanity is the symptom of any pathologic process implicating the psychic centers of the brain, hence the borderline between sanity and insanity lies at the point where brain disease parts ways with brain health; by brain being meant its psychic centers."

In this connection I may be pardoned an allusion to a discussion of this point by myself before this Section two years ago.⁴ In writing on "Hospitals for the Neuropathic and Psychopathic," I said: "Either the

two classes belong together to a great extent or their separate needs have been largely ignored." I then showed how a large proportion of the "neurotic" are really insane, and are found among the inmates of public asylums, while "nervous prostration" is often a polite misnomer for insanity, the only distinction between a large number of patients in any private sanitarium and those in public hospitals for insane being that the former are blessed with longer purses. The phobias, the obsessions, hysterias, hypochondrias, the confirmed drug and drink victims are certainly cases of mental as distinguished from nervous disease. No definition could be framed which would include insanity and exclude these cases. It is also true that the hemiplegias, the apoplexies, the toxemias and even the heart, kidney and arterial diseases, accompanied by disordered brain function, have insanity as a complication. Nevertheless, these cases are not generally regarded as insanities, either by the profession or the public, though technically they are such, for they are "a seriously [and persistently] impaired condition of the mental functions involving the intellect, emotions or will or one or more of these faculties, exclusive of temporary states produced by and accompanying acute intoxications or acute febrile diseases."⁵

And here the fact is strongly brought out that the word "insanity" means everything or nothing, according to the use made of it by different persons. Insanity is very generally accepted as a generic term for all abnormal mental action produced by disease or defect or disorder of brain. In another sense it is applied only to offensive or dangerous mental states, which causes a natural and nearly universal feeling that we do not wish it applied to ourselves or our friends, however appropriate it may be for others. It has, in a lesser degree, the suggestion about it of the older word "lunacy," which in its day was equivalent to possession by the devil. Hence, it is abhorrent to call neurasthenia and hysteria *et id genus omne*—"insanity." This confusion will, in my opinion, ultimately result in the abandonment of the word. Its meaning in law, in medicine, in common parlance and in psychology is variable and confused to the last degree. No complete nor generally acceptable definition of it has been or can be formulated. It is, we often remind ourselves, only a symptom of brain disease still more or less obscure in its nature, and yet we must, in a practical way, consider and treat it as a disease in and of itself. Psychosis is a preferable term. It is less objectionable and more indefinite, and I submit that an indefinite word is better calculated to define an indefinite thing. The meaning of insanity can not be properly limited to offensive or dangerous cases. The neurasthenias are, all will admit, psychoses, but the insanities are psychoses in precisely the same sense and it seems inaccurate to call one psychosis insane and another sane simply to please the ear unless there be some radical difference in fundamental nature. If "major" and "minor" are acceptable, no alienist would object, even though the word "psychosis," like "hysteria," may be mildly objected to. There are many patients who do not care to be told they have hysteria, either "major" or "minor," and of course nothing will overcome the objection felt by wounded pride to acknowledging infirmity in the highest faculties. If, however, psychosis be accepted, a gain in clearness will have been won and

2. Boston Medical and Surgical Journal, March 31, pp. 339, 352.

3. Transactions of the American Medico-Psychological Assn., 1898, vol. v, p. 114 et seq.

4. Hospitals for the Neuropathic and Psychopathic, THE JOURNAL A. M. A., Sept. 27, 1902.

5. Century Dictionary ("and persistently") is added from the "Standard Dictionary".

the unnecessarily painful associations of "lunacy" and "insanity" will be avoided. Furthermore, along with the passing of neurasthenia, there should be a passing of the word insanity and with it an unnecessary opprobrium will also have disappeared.

I may advert here to another utterance showing the obscurity of the word insanity. In an ingenious article in a recent issue of the *Alienist and Neurologist*,⁶ Dr. J. W. Wherry proposes that the word insanity shall be applied only to delusional states, but as insanity is fully as much a symptom of emotional and volitional, as of intellectual states, the proposal seems impracticable. Furthermore, all the phobias and obsessions belonging to conditions not generally regarded as insanity would have to be renamed.

The delirium of fever differs from insanity only in duration and not in kind. If it is insanity when continued three months, it is insanity when continued three hours, at least there is nothing to show at what point a dividing line exists, and to give widely different names to stages of the same disease leads only to confusion. We may correctly say a psychosis complicates a fever, whether the complication be of three hours' or of three months' duration. The phobias of the neurasthenic, the obsessions of the hysteric, the illusions of the hypochondriac differ only from the wildest delusions of the maniac in degree; at least, if they differ in kind, we are not yet prepared to demonstrate the fact. The "phobia" of the neurasthenic which transforms *muscæ volitantes* into threatened blindness or creates cancer or heart disease out of nothing is insanity, even though it has been unrecognized by our neurologic brethren.

I can agree, from my own experience, with Dr. Dana's statement that very many cases of so-called climacteric insanity have always been psychopathic and have had attacks of mania or severe neurasthenia in early life from which they have never fully recovered.

One further reflection and I am done. The last idea I wish to advance is that the progress made in classification in nervous and mental diseases of late has largely been in the direction of obliterating lines rather than in drawing new or closer ones.

In the classification of insanity, the views of Kraepelin which meet with general favor have been characterized by throwing together cases formerly classified separately. If there was formerly any agreement as to species of insanity, certainly "mania," "melancholia" and "dementia" were considered stable and well defined, but the line between the two first has been erased by forming one group, embracing largely the acquired insanities and terming them the "manic-depressive insanities" or "mania-melancholias," while dementia has been applied to another great group of the primary insanities with the prefix "precocious" and subdivisions into "hebephrenic," "catatonic" and "paranoid," thus leaving "paranoia," while in the differentiating stage, somewhat suspended in midair. This conception of "dementia precox" modifies greatly the meaning of "dementia" as formerly understood and includes an extensive class of cases formerly not classified as dementia, and, indeed, not possessing the character formerly attributed to dementia by English writers.

Now turning to Dr. Dana's proposal that the neurasthenias shall largely be classified as psycho-neuroses or "phrenasthenia," thus bringing them under the category of mental diseases—or, as one may say, with bated

breath, "the insanities"—we see an opinion expressed by the neurologist with which the alienist can heartily concur and in fact a proposition which is not new to the latter. At the same time this means the destruction of lines formerly rather generally agreed on of distinction between insanity and various so-called neuroses (hysteria, neurasthenia, hypochondria, the various phobias and obsessions), and the transfer of a large group from the field of neurology to that of psychiatry.

On the whole, I fear I may be accused, in writing on this subject, of writing on something non-existent, or at least on a most vague and indefinite subject, and this I must admit, only urging in my own defense that we are not yet in a position to secure scientific accuracy and will not be until the changes from health to disease going on in the brain, of which insanity is the symptom, can be localized and qualitatively and quantitatively understood. We may appear at present to be going backward, changing and undoing the work of our predecessors, rather than advancing; nevertheless, true progress frequently requires such a process as new lines of investigation are discovered and new working hypotheses are adopted.

MEDICAL PRACTICE IN SIBERIA.

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REQUIREMENTS FOR MEDICAL PRACTICE.

The rules of medical practice in Siberia are the same as in European Russia; that is, for the whole Russian Empire, from the Baltic Sea and the German-Austrian frontier up to the Pacific Ocean—Vladivostok and Port Arthur—there is one medical law: For the right of practicing medicine one must be graduated from one of the ten imperial universities of Russia. The university can be attended only by those graduated from a classical high school (eight years' studies), the so-called gymnasium, while the time of study in the university is not less than five years. After graduation, each student is permitted to take the state examinations, always oral. If the student be successful in these "final" examinations, he gets his diploma, and the right to practice medicine throughout the Russian empire and to fill any medical position in the army, navy or civil services, etc. For the higher medical positions, as well as for professorships, the physician must take new examinations on certain subjects, prepare a scientific work and defend the same openly. Then he gets the second, highest medical degree, *doctor medicinæ* (doctor of medicine).

Thus the medical practice in Siberia is in the hands of people who have received a complete preliminary general education and a special medical one from a university.

UNIVERSITY EDUCATIONAL DISTRICTS.

The Russian government decreed in 1899 that each university should accept only students belonging to the educational district in which the university is located, so that a graduate from the Siberian gymnasium can attend only the University of Tomsk, but by no means the University of Kazan or Moscow. These universities can be attended only by students from their respective educational districts. A graduate from the gymnasium in Odessa, for instance, can study medicine only in Odessa, but not in Moscow or Petersburg.

The majority of young physicians in Siberia are thus graduates from the University of Tomsk, although there

6. *Alienist and Neurologist*, April, 1904, p. 147.