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The DSM as a Moving Laboratory: The Role of the Diagnostic Manual in the Stabilizing and Objectivization of Pharmaceutical Reason¹

Abstract: The aim of this article is to trace the paradigm shift that occurred in psychiatry in the 1970s. This change had a key impact on the social perception of health and illness. The theoretical framework of the text is actor-network theory (ANT) and science and technology studies (STS), which deal with the influence of technoscience on society. Using the model of laboratory practice produced within their framework, I attempt to show how the creation of a new diagnostic manual resembled constructing an innovation in a special environment for the purpose of achieving replicable results and controlling the invention's operation outside the context of creation. In the second part of the text I will deal with the new medical rationale, defining the concept of 'pharmaceutical reason' and linking its model of human health with the process of biomedicalization. At the end I cite research referring to the use of the diagnostic manual in medical practice.

Keywords: actor-network theory (ANT), science and technology studies (STS), medical sociology, standards, biomedicalization, pharmaceutical reason.

In one of her texts, an eminent Polish practitioner of the sociology of medicine claims that medicine tends toward simplification and reductionism in explaining human health and illness. This problem stems from the fact that the dominating model remains the biological model, which

limits the interests of medicine to organic aspects and treats human suffering as an object and the body as a machine. This model presents the doctor as the "body mechanic," insensitive to the psychological wellbeing of his patient, oblivious to possible side-effects of treatment, and having no idea about the broader society that could have an impact on the emergence of diseases (Sokołowska 2009: 28).

The above manner of thinking is nowhere more visible than in the area of medicine engaged in mental health. Disorders such as depression or hyperactivity were once considered problems evoked by social factors; today they are explained in naturalist categories (Healy 1997; Wróblewski 2011). At the same time, the popularity of pharmaceutical therapy is growing. Psychological problems are increasingly often treated

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by a direct intervention in the organism's functioning. In this model, the risk associated with disease undergoes individualization (Domaradzki 2012). This is accompanied by the appearance of modern diagnostic technology, which additionally supports the biomedical model of human health.

In the sociological literature, the above processes are called biomedicalization (Clarke et al. 2010; Wróblewski 2013). Like all global phenomena, biomedicalization is also localized. The context in which it operates, the actors contributing to its development, the key moments of its history, and the rationale behind it can all be defined. These issues are often raised in Polish sociology (for instance, Sokołowska 1986: 224–228; Domańska 2005; Majchrowska 2010; Nowakowska 2013). There have also been works pointing to several factors responsible for medicalization processes, including changes in the diagnosis of psychological diseases (Nowakowski 2013: 249–255).

As I will try to show, the shift in knowledge structures that occurred in the middle of the 1970s in the United States is closely connected with biomedicalization. The main aim of this text will be to trace the paradigm shift in American nosology, which entirely changed the perception of mental disorders both in the scientific discourse and in common knowledge. It is the history of the emergence of the third edition of the diagnostic manual published by the American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders Third Edition (DSM III). This shift is connected with a manner of conceptualizing mental health that I call 'pharmaceutical reason'. This study does not pretend entirely to explain the intricate processes associated with the meeting point of medicine and society. It is rather a contribution pointing to one main source of those processes.

Nosology and medical diagnostics could be treated as results of technological progress, which creates innovations influencing not only medical practice itself, but also other areas of social practice. It is precisely for this reason that the theoretical framework of my article is the actor-network theory (ANT) and science and technology studies (STS), which deal with the influence of science and technology on society. Using the model of laboratory practices created within their framework, I attempt to show how the creation of a new diagnostic manual resembled constructing an innovation in a special environment for the purpose of achieving replicable results and controlling the invention's operation outside the context of creation. In the second part of the article, I will deal with that new rationale, defining the concept of 'pharmaceutical reason' and connecting this model of human health with the biomedical process. At the end, I consider studies on the use of the diagnostic manual in medical practice, asking whether the manual issued by the American Psychiatric Association is truly fulfilling its role: that is, influencing the actions of doctors by universalizing the biomedical vision of mental health.

Moving Laboratories and Infrastructure

One of the main conclusions to which science and technology studies has led is that the institution of the laboratory is responsible for the success of modern science and constitutes a source of contemporary social, political, and economic changes. It is in

laboratories—as scholars of science and technology studies claim—that the inventions emerge that have a deciding impact on social interactions, economic indicators, and relations of power. From the viewpoint of the cognitive aims of this article, I will be interested in the model of laboratory practice that emerges from actor-network theory and science and technology studies, because, as I will attempt to show, it is very well suited for the analysis of social changes.

The model of laboratory practice is a *de facto* collection of factors whose task is to stabilize the given scientific-technological innovation in such a manner that it acts, outside the walls of the laboratory, in accordance with inventors' intentions. Latour creates such a model using the example of Ludwik Pasteur, who managed to create a vaccine against anthrax on the basis of his research. This story is perfectly well known and has been analyzed many times in the science and technology studies and actor-network literature literature (Latour 1988; Latour 2009; Sojak 2004: 233–244; Bińczyk 2012: 152–154) thus I will not repeat it here in detail. Briefly then, Pasteur managed to translate the interests of various social groups into his own exploratory interest, to isolate the phenomenon (anthrax) at issue, and in controlled laboratory conditions to stabilize a new actor (the vaccine), in order next to transfer the laboratory environment into the area of the social. Therefore, the change in some status quo through a scientific-technological innovation is spoken of in the context of 'moving laboratories' (Sojak 2004: 243).

Let us analyze these steps in turn. Research work does not occur in a vacuum and is more or less connected with the interests of various social groups. If the entities with a high degree of political agency are interested in the construction of an innovation, it will be easier to acquire the resources for research work intended for such a purpose. Similarly, within the sphere of science itself, voices might appear demanding change in some theory. In order to understand this better, we can turn to Thomas Kuhn's concept of paradigm shift. As we will remember, a paradigm shift occurs, among other times, when the old paradigm begins to generate increasing anomalies (Kuhn 2009). This is a situation where various research collectives seek a manner of restabilizing the scientific field, but through the use of other ideas, tools, or practices. Both the existence of a social group interested in innovation and the appearance of a need for change within the sphere of stabilized structures of knowledge are a considerable challenge for researchers. They must translate existing interests into their own cognitive interest, that is, translate their own scientific practice into the currently existing need (both economic and cognitive). As Latour states, 'he who is able to translate others' interests into his own language carries the day' (Latour 2009: 166).

If the translation of interests succeeds, the whole machinery of succeeding actions is set in motion. First, the given problem is isolated from the broader context (to which end, for instance, data or samples are collected), and then brought into laboratory conditions. This transfer is at the same time a reduction of complexity, a 'change in the scale of the phenomenon' (Bińczyk 2012: 238), a subjugation of heterogeneity. Surveys of representative groups of a population are an obvious example of such a practice. Such a proceeding allows for a given phenomenon to be studied in a larger extent, but with the use of smaller resources (Abriszewski 2008: 33–40). In addition to the

reduction of complexity, the laboratory conditions themselves make ‘processing’ of the given phenomenon much easier. The laboratory stabilizes the environment, thanks to which scientists have greater control over the research process. A large role is played here by all kinds of equipment, artefacts, and objects, which scientists use in their cognitive practices (Latour 1987; Latour 2011: 28–32). In the laboratory a researcher works not only with his mind, but also through the use of a range of non-human factors. Thanks to the instruments used in research, the extent of possible interventions is increased and a ‘broadening of the cognitive competences’ (Bińczyk 2012: 153) of the researchers themselves occurs. The stabilized laboratory environment means that the given phenomenon can be submitted to continual manipulation, testing, and improvement.

The aim of laboratory practices is to create a new entity with the desired traits and actions. The ready product of research activities is tasked with functioning properly, which means that it must behave in such a manner as to produce, every time, the result intended by the researchers. Replication is here an important compositional element of the whole model of laboratory practice, because it is possible to achieve precisely through the specific environment of the laboratory itself and the specific work of the researchers themselves. Without isolating a given phenomenon, without using instruments and objects, without improvement, continual tests and interventions, it would not be possible to achieve a stabilized result, and it would also not be possible to construct an innovation that could be implemented in society.

Implementation itself does not proceed according to a simple model. It is not solely an ordinary transfer of the ready product to the area of the social. Similarly, in the very moment at which innovations exit research walls, various kinds of transforming practices take place. The product of laboratory factors moves with certain elements of the laboratory itself. Science and technology studies postulates that, in order to think about this process in the context of moving laboratories, which transform the social sphere, it is enough to have the conditions for the stable existence of a given phenomenon. In the example of Pasteur, the success of his vaccine depended on the laboratorization of French farms, which were rebuilt in accordance with the guidelines of scientists. Only under these conditions could the new entity, stabilized in the laboratory, work ‘in the field’ as well.

In summary, the science and technology studies model of laboratory practice assumes that the construction of an innovation occurs with help: the translation of existing interests into the cognitive interest of the scientists themselves; the isolation of a set problem and its enclosure in a controlled laboratory environment; the change of scale and reduction of complexity; manipulation, improvement, and intervention aimed, sometimes by trial and error, at achieving the desired, replicable results; the use of appropriate apparatuses and artifacts; the transfer of the ready innovation in such a manner as to control its activity outside the laboratory as well as in.

The laboratorization of various areas of the social is connected with the creation of conditions in which a set innovation can behave in accord with the intentions of its creators. Latour claims that ‘scientific facts are like trains—they don’t work off their rails. You can extend the rails and connect them, but you cannot drive a locomotive

through a field' (Latour 2009: 178). Researchers in science and technology studies call this collection of necessary elements, which are somehow created during the research process of the entity, infrastructure (Latour 2010: 169).

Susan Leigh Star and Geoffrey Bowker postulate that infrastructure should be thought about in a very specific manner. They consider that it is a collection of material elements in the environment, rules, objectified standards, or institutions, which are unnoticed by us on a daily basis, and which make many routine practices run smoothly and without the need for thought (Star 1999; Bowker, Star 1999). An excellent example is driving a car. In order for it to be possible a whole range of material elements (roads, fuel stations, mechanic shops, sales salons, etc.) and non-material elements (rules, norms, and symbols) are needed. If we want drivers not to kill each other on the roads, we have to set acceptable speeds, create institutions of social control (for instance, in the shape of the police and courts), set up signs, and sometimes, in particular cases, manipulate the material space of road users. Speed bumps—the intentional raising of the road level in such a manner as to force drivers to slow down—are an example of the latter (Latour 1992; Afeltowicz, Pietrowicz 2013: 116–117). Furthermore, not only scientific facts require stabilization with the aid of infrastructure (material and non-material) but also social interactions (Latour 2010: 291–297).

Let us look now at what precisely characterizes infrastructure in the broad sense (Star 1999: 381–382; Bowker, Star 1999: 35). First, infrastructure is rooted in already existing social arrangements in such a manner that it seems invisible to the users. Its elements are used by us so often and are so close to our routine practices of daily life that we do not consider the enormous role they play in our activities. The more invisible infrastructure is, the more efficient it is. Second, infrastructure acts in such a way that it is always accessible to its users. It does not require setting up each time, but is rather an always readily available tool with a simple, easy-to-use mechanism. Third, infrastructure is composed of elements which exceed the individual's social interaction, making contexts that are not directly available present. They act like the access points described by Anthony Giddens (Giddens 2008). Examples of such places are hospitals, schools, or universities. Their influence on individuals within the spectrum of these institutions' functioning is determined by factors and processes set forth in another context, which in a less complex form are transferred to specific outlets. Infrastructure acts in such a manner—through the connection with practice it determines activities by manifesting rules created in other places and times. Thanks to this function, infrastructure can act as a long-range control (Law 1986). This means that it allows for the control of behaviour through the transfer of a collection of factors that will have an influence on local activity in accordance with the intentions of the entities located in some decision-making centre. Infrastructure's principle of functioning is thus similar to the principle of functioning of a moving laboratory. Fourth and lastly, infrastructure always remains at the basis of existing structures and requires a set socialization. This latter aims to create a situation in which the infrastructure's operation is taken as a given; otherwise, its use will not be routine, and the practices it organizes will not proceed smoothly.

Bowker and Star postulate that infrastructure in this sense should be studied by inversion, that is, by revealing its underlying role of organizing collective practices (Bowker, Star 1999: 34). For ordinary road users, the existence of the material and non-material structures necessary for driving could seem obvious, and thus invisible. Nevertheless, for researchers interested in the change and transformation of various areas of the social, infrastructures must become once again visible. Thanks to this procedure of revealing, it becomes possible to analyze their impact on social life.

Among the many examples of infrastructure components we must distinguish two here: standards and classifications (Bowker, Star 1999: 10–16). The latter is the manner in which the world is ordered. Standards demarcate the fields of objectivity and the points of reference for various types of activities. Classifications harness reality and reduce its complexity. In turn, standards lower the degree of uncertainty in moving about the heterogenic world, as well as combining various practices with one another. Classifications furnish the world, making it more understandable; standards schematicize behaviour, institutionalizing (in the sense proposed by Peter Berger and Thomas Luckmann) social interactions.

Standards and classifications can be connected with each other. It happens thus when classifications strive to influence the behaviour of various social groups, independently of the context of their activities. Standards are thus necessary for circulation. If classification is not embodied in some collection of standards, it will be condemned to localness. Together with standardization, classification can be the basis for practices going beyond the context of their creation. In this sense, standards and classifications together create infrastructure. The latter are indicators of what elements of social practice can be successfully used; the former, on the other hand, direct that use in accordance with a certain set model of objectivity.

In concluding, it is worthwhile to point out why I am here outlining the concepts of a moving laboratory and infrastructure. The logic behind the creation of an innovation in a laboratory and the transfer of laboratory conditions outside could be treated as a process of constructing closed and replicable structures whose aim is to influence social relations. In this sense, the laboratory rationale underlies the creation of social machines, that is, the artificial arrangements of interaction arising in an isolated environment and then transferred to a chosen area of the social (Afeltowicz, Pietrowicz 2008). A moving laboratory could be not only a scientific fact, but also a collection of factors aimed at the lasting remodelling of the behaviours of social entities. Łukasz Afeltowicz and Krzysztof Pietrowicz claim that support groups are an example of such a social machine (Afeltowicz, Pietrowicz 2013: 198–204). The idea of infrastructure (emphasizing the role of standards and classification) concentrates our attention on the collection of practices modelling the social environment, which are necessary so that the establishment of a given innovation can take place at all. Star and Bowker show that the creation of a whole series of elements (both material and non-material) is required before the intentions underlying a social change can be realized.

DSM-III as a Moving Laboratory and as Infrastructure

Publication of the DSM-III is considered to have produced a revolution in psychiatry (Horvitz, Mayes 2005). In reality, not only the practice itself and medical rationale were transformed, but also society's very perception of mental health and disorders (Conrad 2007: 48–49). The events that led to the publication of the third edition of this influential diagnostic manual can be treated as an important example of social change. The aim of the present section will be to show that DSM-III can be understood as an innovation in the actor-network theory and science and technology studies meaning of the word. The process of creating and applying the new method of thinking about mental disorders is connected with the two above-mentioned phenomena—the moving laboratory and infrastructure.

The DSM-III was published in 1980. Ten years earlier, psychiatry was being performed within the psychoanalytic and psychodynamic paradigm. The first two diagnostic manuals (published in 1952 and 1968) sought the sources of mental disorders in trauma hidden in the subconscious (Mayes, Horvitz 2005: 249). These in turn were taken from the relation of the individual to his social environment. From the middle of the 1970s, a gradual paradigm shift began. A new thought collective appeared and with it an entirely new medical rationale. The existence of a collective is a key element in the history of the DSM-III's emergence. It was divided into two groups of researchers, one operating at Washington University in Saint Louis and the other in the New York State Psychiatric Institute at Columbia. The interests of these groups centred on the problem of diagnostics and medical nosology. Their manner of thinking proceeded from the work of Emil Kraepelin, who was a German psychiatrist flourishing at the turn of the century and the creator of one of the first classifications of psychiatric disorders. He also postulated that mental disorders should be viewed through the prism of biological processes and not in the context of the individual's interactions with the environment. We will return to his philosophy of disorders later.

The emphasis on a detailed description of disease entities while simultaneously paying attention to the question of classification constituted the basic dimension of the intellectual identity of the above-mentioned groups of researchers. In the 1970s, they undertook work on perfecting the existing classifications of mental disorders, to make them more precise than the previous ones. The result of this work was Feighner's criteria (the Washington group) and the Research Diagnostic Criteria (RDC—the New York group). The basic trait of these classifications was describing a disorder in such a way as to indicate to doctors exactly what information should be collected from the patient (Kirk, Kutchins 1992: 51). Both tools became the later basis for the present system in the DSM-III.

Work on the new diagnostic criteria took place against a background of crisis in American psychiatry. In the middle of the 1970s, the major question for American doctors was the problem of the reliability of diagnoses. Critics of the psychoanalytic paradigm showed that the imprecision of descriptions of particular disorders translated into imprecision in medical diagnoses. Thus the low level of reliability—one patient could receive two different diagnoses from two different doctors. The collec-

tive of researchers under the influence of Kraepelin wanted to resolve this problem by standardizing the classification of disorders and by limiting the subjective judgment of the doctor. Proponents of the new paradigm considered that:

if (1) they limited the information that clinicians collected, (2) structured the sequence in which it was gathered, (3) guided the manner in which follow-up questions would be asked, and (4) provided explicit instructions about what diagnostic decisions could be reached, they had a chance of greatly reducing disagreement among interviewers (Kirk, Kutchins 1992: 55).

One of the aims of having a standardized classification of disorders was to reduce, as much as possible, the arbitrary decisions of doctors based on individual interpretations. If the new paradigm was to resolve the problem of reliability, the basic issue was to define disorders in such a way that a diagnosis would be solely the fulfilment of a schema imposed from above.

Given that the problem of reliability became a technical problem, it was necessary to find a tool capable of measuring to what degree a given diagnostic definition was satisfactorily constructed. Such a tool was found in the kappa coefficient, which is defined by a mathematical formula estimating the degree of accord between two measurements of the same variable. The value of kappa ranges from -1 to 1 . The closer the coefficient is to 1 the greater the accord between the variables.

In planning the new classification of mental disorders, the key procedure was the use of the kappa coefficient to measure the reliability of diagnostic entities. The coefficient equipped the proponents of the new paradigm with a practical tool to test the level of agreement between doctors' diagnoses. In other words, thanks to the kappa coefficient it was possible to answer the question of whether the new classification would resolve the problem of reliability that was troubling psychiatrists.

The kappa coefficient was already being used in the Feighner classification and the RDC, but it played its main role in the process of creating a new diagnostic manual. This process began officially in 1974, when the American Psychiatric Association established the DSM-III Task Force. The APA decided that the work would be directed by Robert Spitzer, one of the followers of Kraepelin's philosophy and a member of the research group from New York. Fourteen groups of specialists, representing various areas of psychiatry, also participated in creating the new manual. Each was to put forward proposals for specific components (APA 1980: 3). The working version of the DSM passed through a series of commissions, both internal to the American Psychiatric Association and external, and was presented at conferences and symposiums. The main stage in the history of the manual was testing to verify its diagnostic capabilities (Kirk, Kutchins 1992: 121–131). The basic intention of these pilot tests was to find out if the DSM really worked: that is, if doctors could use it in the manner envisaged by its creators, i.e., if they were able to follow standardized instructions and make use of precise diagnostic descriptions. The largest study sponsored by the National Institute of Mental Health (NIMH) lasted two years and involved the participation of 12,667 patients and 550 doctors. At one stage the concentration was on the problem of reliability, measured by the kappa coefficient (APA 1980: 467–472). The study involved pairs of doctors who had independently seen the same patient.

Additionally, it had two phases—before and after the revision of certain categories. All the tests showed that the DSM could be improved by information from the field.

In addition to precise descriptions of types of disorders, proponents of the new paradigm constructed tools helping doctors to use the new classifications. These tools were interview templates (Young 1995: 105–106). One of these—the Diagnostic Interview Schedule (DIS)—was created together with the RDC. It contained a set of standardized questions relating to the main symptoms described by the diagnostic entity.

The history of the emergence of this revolutionary diagnostic manual is obviously much more complicated. We are primarily interested here in the logic behind its construction. Let us consider now whether it makes sense to think about the DSM as a moving laboratory. As we have mentioned, in the 1970s, the psychoanalytic paradigm began to generate an increasing number of anomalies. Scientists pointed to the low degree of reliability in diagnoses. Insurance companies complained of the vague descriptions of disorders and long-lasting therapies, which prevent a standardized (and thus economical) refund of the cost of treatment. Doctors complained of the too general definitions of disorders, which did not cover the many different cases they encountered in their practices. As a result, the whole of American psychiatry was undergoing an identity crisis—it was accused of being unscientific, lacking clear research standards, and even—as expressed in the anti-psychiatry movement—of acting to the detriment of society. Such a complicated ‘map of interests’ (Callon, Law 1982) meant that at that time there were many groups in the institutional field of psychiatry who were eager for a paradigm shift. It was in this context that the followers of Emil Kraepelin’s nosology, led in time by Robert Spitzer, the later architect of the DSM-III, gained importance in the psychiatric community. We have therefore the first condition for the laboratorization of a specific phenomenon—the transfer of existing interests to the cognitive interest of a certain intellectual collective.

I have mentioned that the neo-Kraepelin group, as they were later called, was operating as two research teams, which constructed new, standardized diagnostic criteria. It is worth adding here that work on the Research Diagnostic Criteria and Feighner criteria were purely cognitive in nature, and were not then focused exclusively on the needs of doctors (Kirk, Kutchins 1992: 51). Members of the collective were acting somewhat on the sidelines of American psychiatry, and in conditions rather distant from medical practice. The enclosure of the problem of reliability within the circumference of the research collective’s activity resembled, to a certain degree, the isolation of a phenomenon and its placement in special, controlled, laboratory conditions. Similarly, the later work on the DSM-III occurred in a certain isolation. Although succeeding working versions of the manual were negotiated in an ongoing manner by various instances, and individual disease entities were announced by specially established committees, the main decision-makers in the case of the DSM’s production were members of a fairly narrow group led by Robert Spitzer. This closure of the collective to outside influence resulted in criticism later. Already after the publication of the third edition and its revision there were voices accusing the Task Force of lacking transparency in regard to major decisions (Sadler et al. 1994).

Laboratorization is most visible in the DSM creators' use of the kappa coefficient. As I mentioned, it measured the degree of accord between measurements of one variable. Thanks to this statistical discovery, the advocates of the new paradigm could, in the privacy of their two research groups, test succeeding views of the classification of disorders from the angle of what would truly resolve the problem of reliability. Improving the definitions and descriptions of disorders could be observed also during the pilot studies on the DSM-III's emergence. As I indicated, these were multi-stage studies—after the first phase there was a revision of certain diagnostic definitions, which were then once again tested 'in the field' and measured with the kappa coefficient. Thanks to the establishment of an easy-to-use measurement tool (the statistical measurement) and thanks to the principle of the collective's activity (isolation), it was possible to manipulate and repeatedly retest for the purpose of stabilizing a diagnostic entity in accord with the intentions of the DSM-III creators. The publication of the manual in 1980 was the end of a long process, comprised of practices close to activities performed in a laboratory, where various variants are tested for the purpose of achieving an optimal result.

The kappa coefficient can be compared to the apparatuses and artefacts used by scientists in a laboratory. It fulfilled similar functions. It reduced the complexity of the problem—making a diagnosis became an easy, quantifiable technical problem. Furthermore, it allowed for a reduction in the necessary resources for creating an innovation. If it emerged during the pilot studies that a diagnostic definition had a low reliability coefficient, it was possible to change the definition and test again.

As we learn from the story of Pasteur, stabilization of an innovation means delegating at least some of the laboratory conditions to the environment. In large measure, it is a matter of controlling the network of dependence, which proceeds from the intentions of the inventors of an innovation to routine practice using that innovation. In what sense could the DSM-III be an example of such long-range control? As I mentioned, the standardization of a new nosology in accord with neo-Kraepelin intentions was intended to limit the subjective interpretations of doctors, and therefore directly to increase control of their actions (Wooley 2010: 454). The structure of the new manual left a smaller field of manoeuvre in interpretations than its previous versions. Individual disorders were described with the help of a list of symptoms and the conditions were defined in which a patient could be diagnosed with a given disorder. Use of the manual could thus resemble the simple use of a measure—the definitions set forth the exact number of symptoms that a patient should 'have' in order to be ill (Lakoff 2005: 12). As I have said, together with the new diagnostic criteria, standardized interview templates were developed, which were to improve and further rigidify the work of doctors. Thanks to this tool, the work of doctors could resemble the activities of pollsters taking a survey. The result of such an interview was also very easy to obtain and always related to some diagnostic category defined in the manual.

The new manual emerged in entirely different conditions than the previous edition precisely because its main aim was control of the process of collecting information and making appropriate diagnoses on their bases. In order to achieve this, it was necessary to create special conditions (as in a laboratory), in which the heterogeneous

interpretative practices of psychiatrists would be channelled in such a manner as to produce homogenous results regardless of the context. The aim in transferring the DSM into the world of American psychiatry was to achieve a replication of the results achieved during earlier testing of classifications (the Research Diagnostic Criteria and Feighner classification) as well as during the pilot studies for the working version of the manual.

The delegation of an innovation that changed psychiatry did not end solely with the simple publication of a book and the creation of the structured interviews accompanying it. As I pointed out earlier, in the middle of the 1970s there were many interest groups desiring a paradigm shift. Meeting the expectations of these groups stabilized the invention—the DSM—and thereby increased control over the doctors themselves. One expression of this was the adoption of the new classification of disorders by insurance firms, which began to refund treatment on the basis of the disorders described in the manual. After a certain moment, American doctors had to make diagnoses on the basis of the DSM-III because the insurance system required it. For the government as well, the new classification was desirable, because it was easier, on its basis, to bureaucratize health care policy. Thanks to the DSM-III it was easier to count the number of persons with mental disorders on a national scale, to adapt various types of health plans, and to estimate the scale of financing for the health service. Community studies, which study the mental health of Americans using the DSM classification, are an example of such a practice. They might be compared to a general register, as these were public initiatives aimed at estimating the scale of undiagnosed mental illness in various segments of society (Horvitz 2002: 83–106).² Moreover, the DSM-III became a basic element of the knowledge transmitted in medical schools and was recognized as the model for scientists publishing articles on the subjects of etiology, diagnostics, and mental health therapies in specialized journals (Young 1995: 99).

The Infrastructure of Biomedicalization

Given that the DSM-III is a classification system tasked with standardizing the behaviour of doctors, it is an example of infrastructure in the above sense of the term. This assertion is additionally confirmed by the fact that the new classification of psychiatric disorders prevailed in various institutional fields (health insurance, scientific journals, and medical schools) and therefore associated itself with already established areas of social practice.

Similarly, the traits of infrastructure, which we described earlier, relate well to the diagnostic manual. Although, as we shall shortly discover, the DSM is not visible to all its users in such a degree as, for instance, the metric system (which we use without thinking), for various reasons it is part of routine medical practice. The diagnostic manual is furthermore an element of the social machine, as it is a tool modelling and

² The Polish equivalent of such research is the EZOP (Epidemiology of Mental Disorders and Availability of Mental Health Care), which also used the DSM as a diagnostic tool.

determining the interaction between a doctor and a patient. The DSM-III changed a doctor's visit into a certain pattern in which succeeding points of a schema were to be filled in. It can thus be seen as an infrastructure element, or an entity stabilizing social practice.

If we stopped there, on the assertion that DSM-III is a moving laboratory and an element of the infrastructure, it would not be cognitively very useful in terms of our main question (change in the social perception of health and illness). We must therefore ask: for what is the manual diagnostic infrastructure? What precisely is it that moves with the manual into the sphere of the social? With what general processes is implementation of the innovation related?

In order to give answers to the above questions, we must once again refer to Emil Kraepelin, the spiritual father of the new diagnostic paradigm. This German psychiatrist postulated that mental disturbances should be thought about in the same way that doctors think about infectious diseases (Young 1995: 95–96). Success in treating the latter depends on the doctor's being able to determine the source of the organism's malfunctioning, trace the process of a pathological factor on the patient's health, and find a medicine that will allow the problem to be eliminated with precision. Mental disorders could be treated analogously, that is, as a disturbance of the optimal state of the organism, caused by some internal, describable factor. Simultaneously, one disorder corresponded to one class of those internal factors. A psychiatric disorder is understood here as distinguishable from other diseases. In the name of making psychiatry more scientific, Kraepelin postulated that various psychiatric afflictions should be precisely described and distinguished from one another. Achieving this latter goal depended on an exact observation of symptoms. Only through a precise description of the manifestations of a disorder in the patient's behaviour would it be possible to construct a scientific definition of the disturbance and in this connection to create a diagnostics of use to doctors. The last thing worthy of note in Kraepelin's approach is his premise about the biological foundation of mental disorders. He considered—again through analogy to diseases of the body—that the cause, which could be isolated, lies with the functioning of the organism, and not, as thought in psychoanalysis, with the individual's relation to the environment. Thus the necessary supplement to diagnostics had to be a naturalist etiology, which should concentrate on study of the biological bases (specific causes) of individual mental disorders.

We can point out here at least two unusually important implications of Kraepelin's position for thinking about health and illness. First, in the new paradigm, there may be many more diseases than in the case of psychoanalysis. The latter postulated that the whole range of various disorders could be fit into very capacious categories. Although Kraepelin himself distinguished only two main types of mental disorder, classifications have arisen with increasing numbers of disorders on the basis of the rationale underlying his work (Horvitz 2002: 39). A major stage of this growth was obviously the publication of the DSM-III, which contained 265 disorders in comparison with 182 in the previous manual (Mayes, Horvitz 2005: 251). Second, thinking about mental disorders as separate afflictions produced by specific biological factors influences the model of effective therapy. While in the case of psychoanalysis, this was long-term

and holistic therapy, in the new paradigm it is a precise intervention in the functioning of the human organism. An obvious example of the latter is pharmaceutical therapy. The conclusion is that the winning approach based on Kraepelin's premises made the success of psychopharmacology possible. It is worth mentioning that the effectiveness of the latter was already known in the 1950s, but it only took on significance in the middle of the 1970s, that is, at the moment when the neo-Kraepelin diagnostic approach began to drive out the psychoanalytic paradigm (Lakoff 2005: 8–10).³

Andrew Lakoff uses the idea of pharmaceutical reason to describe this new rationale:

Illness comes gradually to be defined in terms of that to which it “responds.” The goal of linking drug directly to diagnosis draws together a variety of projects among professionals, researchers, and administrators to craft new techniques of representation and intervention. These projects range from diagnostic standardization and the generation of clinical protocols to drug development and molecular genetics. This constellation of heterogeneous elements is joined together by a strategic logic I call “pharmaceutical reason.” The term “pharmaceutical reason” refers to the underlying rationale of drug intervention in the new biomedical psychiatry: that targeted drug treatment will restore the subject to a normal condition of cognition, affect, or volition (Lakoff 2005: 7).

We can define pharmaceutical reason here as a collection of premises concerning the human organism, its health or illness, and the potential medical intervention. As such, it is only a certain theoretical position, a collection of philosophical premises. Among the latter, we can distinguish the biologicistic vision of man/woman, which sees his/her mental health through the prism of innate and immutable human nature (Horvitz 2002: 135–137). From this viewpoint, a human being is a complicated biological machine with its own balanced mode of operation. If something goes wrong with it, then an efficient mechanic (the doctor) is able to figure out which cog is out of order and to suggest a precise intervention.

Pharmaceutical reason itself is only a theoretical model, a collection of ideas, which in themselves are unable to regulate medical practices. This occurs when it acquires the necessary objectivization, that is, at the moment when the conditions are present for it to actively influence medical practice. This happens when the appropriate infrastructure appears. In the case that interests me here, this infrastructure is, among other things, the standardized DSM-III classification. Thanks to the diagnostic manual, a new manner of thinking about mental health could circulate and be implemented in various areas of the social. Along with the DSM, a whole series of tools and stabilizing practices is added to the world of medicine. Disease entities are

³ The whole history presented here can be told by concentrating on the behind-the-scenes interests of the pharmaceutical companies. Although the statement that big capital is the main cause of change in the classification of mental disorders is difficult to prove, the fact remains that the evolution of diagnostic manuals generally favors the interests of the firms producing medicines. It is worth noting here that the pharmaceutical companies have an entire range of techniques by which they influence the growth of diagnoses and thereby the growth of medicine sales. These techniques include patients' organizations, working closely with doctors, ghostwriting, and political lobbying. The literature on the subject mentions so-called disease mongering, which can be translated as trading in diseases (Moynihan, Cassels 2005; Goldacre 2013: 259–363). It also indicates the increasing appearance, in the case of creating the DSM, of conflicts of interest, i.e., the involvement of members of the APA with pharmaceutical companies (Cosgrove, Krimsky 2012).

described as differentiable diagnostic units. Doctors are equipped with standardized plans for diagnostic interviews, which consist in a simple counting of symptoms. Simultaneously, there is pressure from the insurance companies to use the classification in accordance with pharmaceutical reason. Every use of the manual in routine medical practice is a confirmation, at the micro-level, of the legitimacy of the whole psychobiological model, a constant sanctioning and reference in various contexts.

Pharmaceutical reason is, however, connected with the many other processes shaping the social image of health and illness, which sociologists call biomedicalisation (Clarke et al. 2010: 1–44; Wróblewski 2013). This is a process of expansion of the medical discourse into an area that was not previously connected with health or illness. Biomedicalization differs from traditional medicalization by the fact that its engine is technological development. The impact of modern science on broadening the medical rationale is visible in three areas: the diagnostic-etiological, the therapeutic, and information technology. The first two are connected with the development of genetics, neurophysiology, and neuroanatomy. The influence of these fields is visible both in studies into the etiology of diseases and in everyday medical practice. It is enough to mention such discoveries as emission tomography (SPECT) or magnetic resonance imaging (MRI). The development of therapy is, in turn, most visible in the area of mental disorders. Discovery of a new generation of anti-depressant medications, that is, selective serotonin reuptake inhibitors (SSRI), including fluoxetine (better known as Prozac), was a revolution in the world of medicine. Anti-depressants entirely changed thinking about human health, creating a cultural fashion for what was called ‘lifestyle drugs’ (Healy 2002: 375–381). In the 1990s Prozac, Zoloft, and Paxil became hits of the pharmaceutical market, responding to growing consumer demand, mostly American. These ‘blockbuster drugs’, as the pharmaceutical branch called them then, meant that pharmaceutical therapy began to be treated as a tool to improve performance, and not as a form of treatment. The last area where modern technology has had an effect on biomedicalization is the development of information technology. Modern medicine is connected with the proliferation of information concerning health and the enormous databases associated with this phenomenon. Their appearance in the last few decades has meant that various medical practices (both medical and those not directly related with the institutionalized health service) create a homogenous network of dependence, thanks to which valuable information about patients can quickly circulate between hospitals, insurance companies, pharmacies, and pharmaceutical concerns.⁴

In addition to continually broadening the medical discourse, the result of the range of practices comprising biomedicalization is a way of thinking about health and illness in strictly biological categories. Underlying biomedicalization is the conviction that every health problem is, in the final analysis, a problem of the organism, and that technological progress in the sphere of measuring instruments is able to determine the source of the problem with precision, either at the level of protein construction (genetics) or at the level of the functioning and build of the brain (neurophysiology,

⁴ The very interesting analyses of the use of pharmacy sales data by representatives of the pharmaceutical companies, who control doctors in this manner, are an exemplification of the idea (Polak 2011: 132–138).

neuroanatomy). At the same time, biomedicalization is accompanied by a progressing commercialization of all types of medical services. The most obvious expression of this phenomenon is the success of the companies producing medicines.

If pharmaceutical reason circulates in society thanks, among other things, to a diagnostic manual, and if biological rationale underlies the continual broadening of the medical discourse, then the DSM is also an important element of the infrastructure of biomedicalization itself. Without defining the area of objectivity and showing the standards of behaviour in medical practice, biomedicalization and the accompanying phenomena (pharmaceuticalization and the commercialization of health and illness, legitimation of a biological-reductionist view of health and illness) would undoubtedly not have proceeded at such a rapid pace. In order to prove this assertion, let us go back to what we said about pharmaceutical reason: a mental disorder is an entity that can be isolated and whose cause is the poor functioning of a certain element in the organism. Thus the ideal of medical intervention is a therapy with a direct effect on the organism. Such thinking obviously gives an advantage to the proponents of pharmaceutical therapy. Furthermore, pharmaceutical reason has a tendency to produce disease entities, because, in accordance with Kraepelin's stance, it is possible to distinguish specific causes for a specific disease, while in the psychoanalytic paradigm, many groups of symptoms are pulled into one category of disorder. This inflation of disorders is accompanied by the appearance of various medicines. If an intervention is to be precise, it requires a specific chemical compound. The rationale underlying neo-Kraepelin diagnostics indicates that every disorder should have a separate medicine (Horvitz 2002: 66). The success of neurophysiology, neuroanatomy, and genetics is moreover a fulfilment of Kraepelin's postulates, as he considered that science should study the etiology of mental disease in order to determine the exact cause of different disorders. From this brief summary of the arguments to date it ensues that the rationale of pharmaceutical reason (in its objectivized, socially existing form) contributes to the development of biomedicalization and at the same time constitutes its theoretical-philosophical support, as it provides and maintains a set vision of human health, illness, the organism, and therapy.

Does the DSM work?

As I have already answered the questions about the sense in which the diagnostic manual is infrastructure and a moving laboratory, and what precisely is transferred into various areas of the social, I will now concentrate on answering the question of whether that element of the infrastructure works effectively. Are medical practices modelled by the use of the DSM successful? Did the appearance of the new manual really contribute to biomedicalization processes? Can the DSM also work in contexts that are more distant from its creation (for instance, in semi-peripheral countries such as Poland)?

In order to answer the first question, let us consider here the results of two sociological studies that concentrated on real medical practices using the DSM. The

first, by Adam Rafalovich, concerns the phenomenon of diagnostic uncertainty in the example of one disorder—ADHD (Rafalovich 2005). The sociologist shows that the standardization of the medical discourse in the DSM in practice does not always translate into the behaviour of doctors. In spite of the fact that much effort was made to influence diagnoses, in reality doctors must struggle with situations of uncertainty while relying, in spite of the intentions of the manual's creators, on their own interpretations. Doctors not only relate differently to their patients, but above all, as a result of encountering specific instances, are sceptical about the categories worked out and established by nosological theoreticians. Rafalovich conducted interviews with 26 persons dealing professionally with ADHD sufferers in the United States (psychiatrists, pedagogues, paediatricians, and psychologists). 24 of those surveyed expressed doubt and concerns regarding the technique of diagnosing and treating ADHD. The majority of them confirmed differences and discrepancies between the etiology of ADHD derived from the DSM and actual examples of the disorder. The difficulty ensued, among other things, from the fact that the 18 criteria of the DSM were not separated into biological and environmental criteria. Doctors very often made this distinction themselves, dividing ADHD into primary (neurological) and secondary (social/environmental) ADHD. One of the respondents claimed that only the former is 'real' ADHD. Many of the respondents considered that it was not enough to count the symptoms in accord with the recommendations of the DSM—more precise and time-consuming observation was necessary. The diagnostic manual itself constituted an introductory guide for the doctors surveyed, but it did not cover the multiplicity of factors which they encountered in their work. One of the respondents expressed an awareness of the changeable definition of ADHD in the following manner: 'I really think that ADHD is a garbage diagnosis changed within the next couple of years' (Rafalovich 2005: 311). Some rejected the DSM in general as it did not dovetail with their approach to the patient. 18 of the respondents were not convinced of the neurobiological explanations. They were not themselves able to say what the specific cause of ADHD was. The answers of the remainder varied very much between themselves—explanations oscillated between the occurrence of some trauma in the child's life to a defect of the brain. Many of the respondents indicated that ADHD is a disorder 'in process' (Rafalovich 2005: 312), whose sources are not entirely known. In spite of their reservations, the use of the DSM is required by legal and bureaucratic factors. It appears that basing their diagnoses on the manual is required for the financing of treatment. 'I guess you might say there is a pressure to use the letters "A-D-H-D," so that we can move ahead and get a kid treated' (Rafalovich: 313). If the diagnosis is based on the DSM there is a large likelihood that the cost of treatment will grow significantly.

Another study, by Owen Whooley, analyzes diagnostic ambivalence in terms of a situation of entanglement in two mutually exclusive situations: on the one hand the requirement to use the standardized rules contained in the diagnostic manual and on the other the heterogeneous and often unpredictable practice of medicine (Whooley 2010). The sociologist asked doctors how they deal with the rules, standards, and restrictions, while simultaneously wanting to perform their job—which often

escapes simple schemas—properly. Wooley discovered that in order to deal with the problem, doctors adopt a range of alternative strategies in regard to the requirements of the standardized classification. Let us name a few of them. The doctors in the survey use their own typology, based on personal experience and subjective conviction (which is naturally the product of many years of practice), and only later translate the categories they use into the categories in the DSM. Most often these typologies are much narrower than those that can be found in the diagnostic manual. As in the psychoanalytic paradigm, these are fairly capacious disorders, into which various symptoms fall. Another strategy is to make a diagnosis not in accordance with observed symptoms, but in the interests of the patient himself, defined by either the ease of receiving coverage of the treatment costs, or in the context of the social stigmatization associated with having a disorder. To speak plainly—doctors often choose, in their diagnoses, those disorders of the DSM that will most easily be covered (there is a greater chance of the diagnosis, if the insurance company will pay the proper amount) or those that do not stigmatize the patient in the eyes of other people. This happens, of course, with the understanding of the patient. Many doctors indicated in the studies that their diagnoses are in principle a dialogue with the patient. Contrary to the gold standard of the neo-Kraepelin psychiatrist, diagnostic practice is based not only on the symptoms manifested by the patient, but also emerges in interaction between the patient and the doctor. The good of the patient naturally comes into play; these negotiations, however, do not concern only health, but also financial or social questions.

Another unusually important conclusion of Wooley's study is the fact that the majority of doctors (23 out of 36) did not dispute the biomedical model of mental disorders; they agree that the psychoanalytic paradigm is unscientific and harmful for medicine (Wooley 2010: 465). And although the respondents were aware that the DSM was not perfect, they trusted, like Emil Kraepelin one hundred years previous, that scientific progress had made possible the better definition of disorders and thereby the improvement of the diagnostic manual itself. We must also remember, taking into account Rafalovich's study as well, that in the American context the use of the DSM is required by institutional factors. Furthermore, very many categories which were to be found first in the diagnostic manual published by the APA have become elements of general knowledge. It is a matter not only of ADHD, but, for instance, PTSD, the set of post-traumatic symptoms (Young 1995). This could incline one to reflect that in spite of its uncertainty and diagnostic ambivalence, the DSM, at a certain general level does in fact work: it 'creates' definitions, which later model the social image of illness; its use is sanctioned by areas of practice having a fairly strong influence on doctors; it causes the dominant medical discourse to be the biomedical model of human health.

We can also see the successful action of DSM in another manner. Remember that pharmaceutical reason has a tendency to produce disease entities and propagate pharmaceutical therapy. If we analyze successive versions of the DSM we observe that the most significant growth really occurred at the moment of publication of the third edition (Mayes, Horvitz 2005: 251). In the last edition, published in 2013, there

are almost 300 disorders. We can also point to the data concerning the consumption of medicines. The use of anti-depressants has grown four fold in the course of the last thirteen years (CDC 2013: 26).⁵ Of course, various kinds of factors come into play here, beginning from the market entrance of a new generation of medicines (SSRI) through deregulation of the pharmaceutical market. It cannot be disputed, however, that underlying the process of reorienting contemporary psychiatry has been the shift in the structures of medical knowledge that occurred in the middle of the 1970s in the United States and that was objectivized and sanctioned by the publication of the DSM-III in the year 1980.

It is hardest to answer the last of the series of questions posed at the beginning of this section. Unfortunately, I do not know of any sociological studies conducted in Poland that are similar in nature to the studies of Wooley and Rafalovich. There is thus no way here to answer convincingly the question of whether the DSM also significantly models medical practice in various semi-peripheral contexts such as Poland. There are, it is true, the studies commissioned by the World Psychiatric Association (WPA), which sets the level of use of standardized classifications of mental disorders by doctors in 44 countries (Reed et al. 2012). From these it emerges that in Poland the overwhelming majority (96% of 206 cases) more often make use of the classification of the World Health Organization, i.e., the International Classification of Diseases (ICD). Nevertheless, we can mention a few facts here that would seem to indicate the DSM is also present to a certain degree in the Polish context. First, the penultimate edition of the manual was translated into Polish, with commentary (reference is to the abridged version, *Wciórka 2008*). Training courses using the DSM are also organized.⁶ Second, the DSM is currently present in several unusually important institutional areas, for instance, in institutions of higher learning. In the descriptions of many courses of study, information can be found about classes introducing students to the APA's classification.⁷ Diagnostic definitions from the American manual are regularly used in scientific journals such as *Psychiatria Polska* (Polish Psychiatry) (Klasa et al. 2013; Szewczuk-Bogusławska, Flisiak-Antonijczuk 2013; Łojko, Suwalska, Rybakowska 2014) or *Psychoterapia* (Psychotherapy) (Brytek-Matera, Charzyńska 2008; Madej 2010; Jackiewicz, Marcinów 2014). In addition, the DSM has been one of the two classification systems used in EZOP studies of Poles' mental health conducted by the Ministry of Health. On the basis of the present article there is no way, however, to answer the question of whether the above processes connected with the spread of pharmaceutical reason and biomedicalization are occurring in Poland in precisely the same manner as in the United States and to what degree the DSM could play a role here in stabilizing and objectivizing the role. This requires further study and analysis.

⁵ In the statistics referred to here, two periods are compared: the years 1988–1994 and 2007–2010. This significant increase concerned people over the age of 18.

⁶ <http://www.pocieszka.pl/index.php?page=dsm&menu=szkolenia> [dostęp: 22.06.2014].

⁷ Cf. the syllabus for clinical psychiatry offered by the Institute of Applied Psychology of the Jagiellonian University: [https://www.usosweb.uj.edu.pl/kontroler.php?action=actionx:katalog2/przedmioty/pokazRupyZajec\(zaj_cyk_id:261980\)](https://www.usosweb.uj.edu.pl/kontroler.php?action=actionx:katalog2/przedmioty/pokazRupyZajec(zaj_cyk_id:261980)) [accessed: 22.06.2014].

Conclusion

The main aim of this article has been to trace the paradigm shift that occurred in psychiatry in the second half of the 1970s in order to describe the new manner of thinking about mental health that Andrew Lakoff called pharmaceutical reason. In accordance with the perspective of ANT and STS, the diagnostic manual could be treated as a moving laboratory and as infrastructure, because it is one of the main resources for the processes of biomedicalisation. In connection with these latter, the biomedical model of health (of which Magdalena Sokołowska wrote), the increasing spread of the medical discourse as a result of increasing the number of disorders, and finally the growing popularity of pharmaceutical therapy are not suspended in a vacuum. They require appropriate tools in order to be maintained and to circulate in society. One of these tools is the DSM. Just as a car can not travel without roads, fuel stations, or mechanics, so biomedicalization can not work without the objectivization of a set of standards, without classification, and without a certain conceptualization of health, illness, the organism, and therapy. Just as the traffic laws determine the behaviour of the driver, so the diagnostic manual can, in certain contexts, influence medical practice.

Finally, it is worth pointing out, once again, the need for further research. The present study is solely theoretical-interpretational in nature. Its aim is neither to reduce the complex social process to one causative agent nor to simplify reality by identifying different contexts with one another. I pointed out earlier that there is a need for empirical studies on the use of the DSM in countries such as Poland in order to be able to estimate to what degree the biomedical rationale acts in conditions other than those of its creation. At the same time, it should be remembered that there are many reasons to think that the popularity of pharmaceutical treatment in Poland has been growing in recent years. We can mention here the studies of CBOS [Social Opinion Research Center] concerning over-the-counter medicines (CBOS 2010); the report on the use of medicines for non-medical purposes by youth (Millward Brown 2013); and lastly, the statistics pointing to the growing consumption of anti-depressants (Heitzman, Solak 2007). Of course, we can not claim that the DSM is responsible for these phenomena, because, as I have said, Polish doctors prefer the ICD classification. It is rather a matter of the change in rationale and the shift in the structures of medical knowledge, which emphasize a more biological and pharmaceutical vision of human health and illness. The source of the view is, among other things, the reformulation of the paradigm in the 1970s, whose history I have here recounted and analyzed.

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